EXTERMINATORS LOG

NATIONAL PEST CONTROL ASSOCIATION

DECEMBER 1937 | "Don't Tolerate - Exterminate" | VOL. 5, NO. 12

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The word *"Exterminator"* is not all-inclusive. The public will and must refer to Pest Control Operators (Exterminators, Fumigators, etc.) by means of a single word. The industry wants a "natural."

To That End:

Fifty Dollars in Cash is offered by John Opitz, Inc., to the employer or employee or entomologist who suggests or coins the most dignified and yet most appropriate name to be applied to "the man" who is now known to the public as the EXTERMINATOR.

•

This cash offer is made by JOHN OPITZ, INC., to obtain a more appropriate name—one which will be euphonious and practical, which will be acceptable to the general public, and help to give to the science of vermin extermination (pest control) a more dignified standing.

•

There is a wide feeling among pest control operators today that a more fitting name be adopted for the industry. No explanation should be required to show the advantages of a single name which becomes a public password. Others have done the same. The Pest Control Industry needs it. Among the fields that have profited by such program are:

Mortician for Undertaker
Beautician for Hairdresser
Podiatrist for Foot Doctor
Sanitary Engineer for Plumber

•

This $50.00 cash offer for a new name for "Exterminator" is tangible evidence of co-operation on the part of JOHN OPITZ, INC., to assist the Pest Control Industry. There are no strings attached to this offer.

•

The conditions are clearly stated in the opposite column, re-emphasizing the invitation to any employer, employee of a Pest Control firm, or entomologist to submit one, or as many names as he desires. Among the stipulations are that all entries must be mailed so as to reach Prof. J. J. Davis not later than Tuesday, January 14, 1938, and only a tie will mean any division of the total $50.00 cash award.

The Judges Are:

T. JOHNSON, *Directory of Publicity, Purdue University.*
PROF. J. J. DAVIS, *Chief of the Department of Entomology, Purdue University.*
H. K. STECKEL, *President, National Pest Control Association.*
IRA P. MACNAIR, *Editor "SOAP."*
AL COSSETTA, *Editor "THE EXTERMINATORS LOG."*

Announcement of the decision is to be made at the Banquet held in connection with the Conference being conducted for Pest Control Operators at Purdue University, on January 20, 1938.

Follow These Few Rules for "EXTERMINATOR" NAME CONTEST

1 — PURPOSE—Submit a dignified, practical, yet appropriate name by which the public may refer to "the man" who is known as a Pest Control Operator. (Exterminator, Fumigator, etc.)

2 — You may submit as many names as you wish in this contest. Each name must be on a separate sheet of paper.

3 — Explain briefly in not more than 50 words your reason for each name submitted.

4 — Names may be invented or coined.

5 — For the name which is accepted by the judges, whose decision is final, John Opitz, Inc., will award $50.00 to such person. Only in case of a tie is there any division of the total $50.00 awarded.

6 — All Pest Control Owner-Operators (employers) or their employees, or entomologists are eligible to enter the contest.

7 — All entries are to be sent to Prof. J. J. Davis, Purdue University, Lafayette, Indiana, so as to reach him not later than Friday, January 14, 1938. Full responsibility for delivery is left with persons submitting names. It is suggested that this first class mail also shows the name and address of the sender in the upper left-hand corner of the envelope.

8 — Judges are privileged to confer with others or invite others to join the Committee, if by so doing, it will assist in reaching a decision.

9 — By entering the Contest it is agreed that the decision of the Judges is final.

10 — No entries will be returned, nor can we engage in correspondence regarding any entry. Contest is for the purpose of co-operation to and in the solution of a problem that has been under discussion for the past few years.

◆ ◆ ◆

USE FORM AS FOLLOWS:

Please print or typewrite the information below and sign your own name on the line provided, placing the information conspicuously.

Name Suggested_____

Individual or Company Name_____

Individual or Company Address_____

City_____ State_____

Position in Company_____

_____
Individual Signs Here

EXTERMINATORS LOG

A Magazine Devoted to a Cause to Which Mankind Is Indebted

Al Cossetta, Manager and Editor
J. W. Smith, Associate Editor

Max Rosenthal, Advertising Manager
32 Lenox Road, Brooklyn, New York
Phone 4-5029

Cooperating with the National Pest Control Association, Inc.

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NATIONAL PEST CONTROL ASSOCIATION, INC.

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Three classes of membership: Active, Associated and Allied. ACTIVE MEMBERSHIP includes all firms engaged in any type of Pest Control operations (general extermination, fumigation, termite control, moth proofing) and dues are $10.00 per year. ASSOCIATE MEMBERSHIP includes branch offices of Active members and yearly dues are $7.50. ALLIED MEMBERSHIP includes manufacturers and supply houses.

STATEMENT

The National Association appreciates the co-operation given by way of publicity. The Association is not responsible for articles published unless credited to the Association. The list of officers and directors is published for informational purposes only.

For further details, communicate with

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Editorial

Termite Shield

THE objective of any editorial is to create constructive reasoning and thus bring about a better understanding. Possibly one of the so-called bones of contention as to termite control operation is the matter of the termite shield. It would appear that one too easily twists thoughts so that when one finishes discussing the subject, there has been a distortion of what might be termed the fundamental premise. The statement was made through these columns, backed by research and experience over many years, that a termite shield properly installed has proven itself the best barrier to prevent infestation of subterranean termites. It follows that included with the proper installation of a termite shield there must also be the type of construction to make such proper shielding do all that is claimed for it in terms of prevention of a termite infestation.

To the commercial termite control operator there has seemed a little over-emphasis with regard to the termite shield but the confusion lies entirely with a lack of understanding or unwillingness to realize that there are limitations with regard to the installation of proper shields. For new construction, and on the assumption that a competent architect has provided in his plans the provision for shielding together with adequate allowance of space between such portions of the building and the soil where intermediary contact might be had, shielding will most certainly afford the desirable barrier to prevent an infestation of subterranean termites. It must likewise be emphasized that obstructions in terms of accumulated debris and other objects or material must not be permitted to remain so as to afford a means of termite "runs" or tunnels to make their way easily to those portions of the building impracticable for shielding. We refer to those buildings where partially unexcavated areas or short-distance spaces between the ground and cross beams in the center or unprotected lower portions of a building exist.

The commercial termite control operator, however, has to deal mainly with buildings that are already constructed. For the most part no thought had been given at the time of building to possibilities of termite infestation. If termite shields were to be installed in many of these buildings, it would mean an unreasonable expense and in some instances there would even be required more work and an attendant expenditure than buildings are worth. This has been recognized by authorities and it is readily conceded that there are many buildings already constructed that make it almost impossible to provide properly installed termite shields because of the expenditure that would be involved. It is at this point that there is emphasized the need of common sense, as so ably pointed out in the address of Dr. Snyder at the Memphis Convention of the National Pest Control Association, so that chemical treatments plus repairs and replacement become the method of treatment. In general, too much emphasis is placed on chemical insulation or soil poisoning phase of control work, whereas it does not merit that much relative importance. One principal trouble as to chemical treatments is that there has not been displayed the proper intelligence of treatment which should have linked with it some system of periodic inspections to make certain that further infestations do not start. The commercial termite control operator is confronted with the basic problem of monetary values and how these are possible to be met on the part of the property owner who has a problem of this nature to be solved. All of this does not take away from the fact that if it were possible to termite-shield properly the property, the value of the termite shield would still remain as the dominant factor of the ideal barrier. Termite control operators realize that it is impossible to expect that unreasonable rebuilding can be done, much less considered by John Q. Public, who pays the bill. The problem then boils itself down to intelligent technique of operations and a proper understanding of the chemicals being used together with proof through actual experience and knowledge about the chemicals standing up in accordance with the claims made for the chemicals. All of this is linked up in turn with the average sales story that is handed out. But that is another story.

Another writer has suggested that the whole idea of the termite shield is an experiment. This can hardly be admitted and for the sake of bringing a proper picture about the termite shield, such instances as the following might prove of service to the termite control operator who is anxious to have all of the facts before him.

Termite shields have been in general use in Northern Australia for a number of years and have been standardized in Queensland. They have also been standardized in South Africa, the Panama Canal Zone, Hawaii and the United States. Careful records have been kept of these shields in the Canal Zone since 1922 and we understand that there are no records of failures. In fact, it is mandatory in the Canal Zone to provide shields on the newly-constructed government buildings. In Hawaii shields have been in use since at least 1926 and quite recently the entomologist of Hawaii reported that there have been no failures when shields have been properly installed. In short, the summary thus mentioned can hardly be considered an "expensive experiment."

It would afford interesting reading for termite control operators to read some of the literature that is available to indicate how many governments are recommending the use of the metal termite shield. Recommendations in the United States for the termite shield were made long before 1927 but the following list will suffice to assist termite control operators in a study of the subject:

1937—Adamson, A. N. Preliminary report on termites and termite damage in Trinidad, West Indies. Tropical Agriculture, Vol. XIV, No. 5, pp. 141-9, May.

1931—Anon. Termites in Buildings. Union of South Africa, Dept. of Agriculture. Reprint No. 74, p. 4, Pretoria.

1936—Termites (White Ants), Commonwealth of Australia. Council of Sci. & Indust. Res. Trade Circ. No. 36, pp. 12-13. Melbourne.

1934—Beason, C. F. C. Control Measures for Termites. Ind. Forester 60, pp. 64-78, 7 fig. (Shield p. 72, Plate 7.)

1935—Cox, C. L. Notes on Termites and Anti-Termite Work. Public Works Dept. Nigeria, Kaduna, p. 19.

1926—Fullaway, D. T. Termites or White Ants in Hawaii. The Hawaiian Forester & Agriculturalist, Vol. 23, No. 3, July-September.

1913—Jack, R. W. Termites or White Ants. Dept. of Agriculture Bulletin No. 139. Rhodesia.

1929—Jepson, F. P. The Termite-Proofing of Buildings in Ceylon. Dept. of Agriculture, Ceylon. Bulletin No. 85, p. 32, Plates 22-26. Colombo.

1925—Light, S. F. Items (Termite shield). Science, n. s. Vol LXI, No. 1576, March 13, supplement p. XIV. (Protect buildings by means of metal shield in masonry.)

1927—Pomeroy, A. W. J. Report on the economic importance of the damage due to termites or white ants in Accra and Achinota on the Gold Coast and methods by which the loss may be curtailed. p. 17, Plates 7-8. Government printer, Accra, Gold Coast.

1927—Snyder, T. E. Termites Modify Building Codes. The Monthly Bulletin, Dept. of Agriculture California. Vol. 16, No. 10, p. 533. Sacramento.

Advertising Representative

The Log is pleased to introduce Mr. Max Rosenthal who has assumed the position of Advertising Representative. For a long time, The Log has felt the need of having one competent to supervise this branch of the publication. It seemed altogether proper also that such representative should reside where there was possible the opportunity for greater personal contact with our advertisers and potential advertisers. The address of Mr. Rosenthal is 32 Lenox Road, Brooklyn, N. Y., and anyone desiring to communicate with him will find a cordial reception.

Mr. Rosenthal comes to The Log with an enviable record of successful accomplishments with such publications as "Business Journals" and "Mail Order Journal."

Washing Dirty Linen

WHY do some companies use more than one name? It would be worth while to discuss this subject at length but before doing so, may we suggest to our readers that they submit a few thoughts and thus make for an editorial that will hit home.

In the meantime we commend the National Pest Control Association for the action taken at their Memphis Convention by adopting the following: "The National Pest Control Association is opposed to the promiscuous use of more than one name in connection with telephone classified or other types of advertising."

This action speaks plenty. Congratulations.

Purdue Conference Course

IT WAS indeed a pleasure to receive word that Dr. Elliott, President of Purdue University, has given his approval for another conference course to be held at the university January 17-21, 1938. Prof. J. J. Davis and his very able staff have already submitted a tentative program but this cannot be released until the January issue of The Log in that certain details require confirmation. Those of us who have had the privilege of reading the advance material are enthusiastic about the program that awaits those who have the foresight to make arrangements to attend. It will be remembered that the pioneering event last year was viewed as something that might possibly attract 20 to 25 men in attendance. That there were over 80 and that those who attended last year still talk about the course and have pleaded for another conference speaks volumes.

The Pest Control Industry is indeed fortunate to have been recognized through the National Pest Control Association which has pledged its unstinted co-operation to Professor Davis and his staff. We can only urge that any who are interested in attending reserve the dates and look for further announcement.

What's in a Name—The Contest Is On

SOME might feel that our industry has gone "high hat" because of the constant endeavor to find a suitable substitute for the term "exterminator." On the other hand it is particularly noticeable how rapidly the public is taking to the idea of Pest Control and there comes complimentary remarks from all sides that at last the industry is trying to make for a situation which will not become confusing. We recognize that the word "exterminate" can never be lost as far as our industry is concerned because there is very definite use for the word in connection with our work in the pest control field.

It does seem proper, though, that there should be some other term besides exterminator that will lend greater dignity to the individual engaged in the pest control field. The generous spirit of Charles Opitz of John Opitz, Inc., in making possible a contest is to be commended. The Log is pleased to co-operate in this endeavor. On the front inside cover of this issue the complete details are given. It is urged that the industry take an active part in this contest. Fifty dollars awaits the person whose name is selected. It is altogether fitting also that this contest should end so that announcement might be made at what has now come to be familiarly known as the Purdue Conference of Pest Control Operators. Those who were privileged to attend this course last year will recall the interesting discussion that took place at the informal discussion held one of the evenings. There were the ideas of Pestician, Pestologist and what not.

Other industries have benefitted greatly by having simplified terms or catchy phrases which immediately identifies one with the industry or profession. May we urge that this contest be discussed by all employers even with their employees because it is quite frequent that the employer becomes rusty and travels in a groove. Allow your employees to have a part in this contest. By all means, let the industry talk plainly. Waste no time and send your suggestions as outlined in the article that appears on the front inside cover page.

Pest Control and the Telephone Directories

ANOTHER advance step was taken by the National Pest Control Association, Inc., by passing the following resolution: "The National Pest Control Association favors one major listing; namely, 'PEST CONTROL' with cross reference listings such as 'exterminating,' 'fumigating,' 'termites,' etc., which would refer the public to the single major listing of 'PEST CONTROL' and pledges the support of the Association to assist all firms to bring about such uniform listing. Announcement of this policy is to be given wide publicity and the matter to be taken up by our Association with the telephone companies and other agencies, requesting cooperation."

Officials of the American Telephone Company will co-operate if there is clearly demonstrated that this is for the best interests of the public and will prevent confusion. That such confusion exists can easily be seen as with each issue of a classified telephone directory there appears new listings of one kind or another and firms frequently are forced into other listings merely to comply with a sort of "monkey see—monkey do" expediency that works toward the ultimate harm of the public because all names that should appear under these various listings are NOT LISTED. One major listing will avoid these abuses and likewise make for the ability of many pest control operators to give proper attention to a single good 'copy' advertisement than to have to spread their advertising appropriations over several line listings because of the confused number of separate listings. If the purpose of the classified telephone directory is to aid the public, it is high time that the authorities in charge of the publication of the directories simplify the manner of listing and in turn the firms of the pest control industry should fall behind such movement.

Some will raise the argument that the public mind has not been made fully conscious as to the term PEST CONTROL. For the most part such thoughts have hidden behind them the lack of proper approach or some other plans to 'put one over.' It is time that the industry itself wake up to the fact that the public will accept anything that is ethical and a mere change in general classification so long as cross reference listings appear, any reader of a classified telephone directory will find it easy when looking up the word "Exterminating" refer to "Pest Control," will then turn the pages to "PEST CONTROL." It is time that there be this uniformity. Pioneering along this direction has been accomplished in Omaha, Neb., Buffalo, N. Y., Auburn, N. Y., Niagara Falls, N. Y. Movements in this direction are fast taking shape in Boston, Mass., the entire state of California, Kansas City, Mo., and other cities.

The important thing to remember is that it takes the concerted action on the part of the pest control operators to bring this about. The resolution adopted by the National Pest Control Association might well head a petition for such request for change and attach to the petition individual letters from the various pest control operators which seek this change. Some team work is required.

The National Pest Control Association pledges its support.

Sanitary Regulations from the Pest Control Standpoint

By DR. L. M. GRAVES,
Superintendent, Department of Health, Memphis, Tenn.

EDITOR'S NOTE: *We are pleased to introduce Lloyd Myers Graves, M. D., born April 23, 1895, at Utica, Mississippi. Graduated from Vanderbilt Medical School 1921, health officer at Williamson County 1922-1926, health officer Shelby County 1926-1927. Superintendent Memphis Health Department and Professor of Department of Public Health, University of Tennessee Medical School since 1928. Member American Medical Association, Southern Medical Association, Tennessee State Medical Association and American Public Health Association. Author of a number of articles on public health subjects.*

Dr. Graves delivered his address at the Fifth Annual Convention of the National Pest Control Association at Memphis, Tennessee, October 25, 1937.

ALTHOUGH there was no scientific knowledge about the part which insects and other such vectors played in the transmission of disease until after the classical work of Louis Pasteur and the announcement of his "germ theory" of disease in the latter part of the nineteenth century (1877) many of these pests were from the very dawn of history associated with the physical ailments of the human race. Their presence was always an evil omen and man instinctively shrank from them in fear.

It is interesting to note in the early Hebrew History that of the ten great plagues sent on the Egyptians, four of them were animal or insect pests. We do not know that the term "flies" as used in the old testament is identical in meaning with the term as used today, but it is interesting to note in Exodus 8:24 the statement, "And there came a grievous swarm of flies into the house of Pharaoh, and into his servants' houses, and into all the land of Egypt; the land was corrupted by reason of the swarm of flies."

As early as 1587 Mercurialis expressed the belief that flies carried the virus of plague. The house fly as a real menace to health was, however, hardly appreciated until 1898 when Veeder wrote: "I have made cultures of bacteria from fly tracks and from the excrement of flies and there seems to be not the slightest difficulty in so doing. Indeed the evidence of every sort is so clear that I have reached the conclusion that the conveyance of infection in the manner indicated is the chief factor in decimating the army. Certainly so far as is known to the writer, nothing adequate has been said about it in current discussions."

Reed, Vaughn and Shakespeare in their studies of the prevalence of typhoid fever in the army in 1898, when typhoid fever killed more soldiers than were lost in combat, attributed fifteen percent of the cases to fly transmission.

As early as 1848 Josiah Nott of New Orleans published his belief that mosquitoes gave rise to both malaria and yellow fever.

The first discovery of primary importance, however, was made in 1878 when Patrick Manson observed the development of the organism of filariasis in the body of a mosquito. Another discovery of great importance was made in 1880 when Laveran demonstrated the organism of malaria in the red blood cell of man.

In 1893, Theobald Smith made the great fundamental discovery that Texas fever in cattle is transmitted by the tick. This was the first scientific demonstration that a specific disease is transmitted by a specific insect vector.

Following these epoch making discoveries progress in medical entomology has been rapid. In 1898 Ronald Ross announced his discovery that certain "dapplewinged mosquitoes" are the carriers of malaria, and in the same year Simond succeeded in transmitting plague from a sick rat to a healthy rat through the agency of an infected flea.

In 1900 the United States Yellow Fever Commission, consisting of Reed, Carroll, Lazear and Agramonte, proved beyond a doubt that the Aedes Egypti mosquito was the vector of yellow fever—thus contributing one of the world's outstanding achievements.

These are but a few of the high lights in the fascinating history of the development of medical entomology. Today there are more than thirty diseases in which insects or other animal vectors are known to be the exclusive or partial agents of transmission. Nor has the last chapter in the story been written. In fact new discoveries are being made almost every year and there is every indication that the surface of this most important subject has barely been scratched. Not only will new discoveries be made about the transmission of existing diseases but it is not beyond the pale of reason to assume that with the development of favorable relationships between hosts, parasites and vectors, new diseases may occur.

There are two types of insect transmission in disease: (1) Biological transmission in which the causative organism passes one phase of its development in the insect, and in which a period of time elapses between the time the insect is infected and the time it is capable of transmitting the disease. An example of this type of transmission is malaria in which the parasite passes its sexual cycle of development in the Anopheles mosquito. (2) Mechanical transmission in which the disease organisms are usually bacteria and are picked up mechanically by the insect and transmitted directly, or indirectly through food or drink to the new victim. The organisms may be carried on the feet, legs, body, mouth parts or in the digestive tract of the insect. The part played by the house fly in carrying typhoid fever is an example of this method of transmission.

The most effective methods of control of pests and disease vectors are based on scientific facts. A searching study of the habits and life history of a pest will reveal the most vulnerable point of attack as well as the most useful methods to employ in its control. It is encouraging to see those of you who are engaged in this type of work associate yourselves in an organization, and assemble in convention, for the purpose of studying the principles underlying your work, and of improving, wherever possible, on the methods which have been employed in the past. I am informed that definite ethical standards of practice, advertising, etc., are recognized and enforced. May I commend you for these steps. Every health officer who has been engaged in public health work for any length of time has had experience with the itinerate pied pipers who travel from town to town making exaggerated claims for the effectiveness of their methods, and seeking to put on spasmodic campaigns in cooperation with the health department. Such campaigns are of questionable value and not only frequently result in grief for the health officer after the Charlatan has collected his fees and gone, but reflect unfavorably on the scientific work which you are doing.

Many of the sanitary regulations of modern health departments are aimed at pests which are known, or suspected, to be responsible for disease transmission. Food and milk regulations carry provisions against flies, rats, roaches, etc. The presence of any of these vermin in a food or milk handling establishment is not only considered dangerous within themselves, but indicate a general lack of cleanliness on the part of the operator of such establishment which an efficient inspector will not tolerate.

In Memphis and in many other cities, effective screening is required as a protection against flies and mosquitoes. In this city it has also been made a misdemeanor for an individual to allow mosquito breeding on his premises. There is a growing tendency to place legal responsibility for producing and harboring pests on the individuals responsible for this condition.

In every sanitary code since the law of Moses there have been regulations relative to the safe disposal of human excreta. One of the chief purposes of these regulations is to protect this waste from flies, rats and other vermin which may transmit disease from it to well individuals. Laws requiring the isolation of persons suffering from communicable diseases recognize not only the necessity of preventing the exposure of well individuals but also the need for excluding vermin which may transmit many of the diseases.

The attention given and the funds expended for pest control in any area will depend on the pests present, the prevalence of the diseases transmitted and the amount of sound educational work which has been done to impress upon the public the importance of control. Fumigation of ships from areas where vermin transmitted disease is endemic, has long been practiced by the United States Public Health Service. Laws requiring rat proofing of buildings have been passed in many of our seaport towns which have experienced out-breaks of plague. Although much of the responsibility for mosquito control in Memphis is passed on to private citizens the City government spends approximately $18,000 annually on this problem.

It seems reasonable to suppose that in the future an increasing amount of pest control work will be considered necessary, from a disease control standpoint; and that those who are engaged in this work on a scientific basis may expect to be called on more often for service.

Goods that you have for sale should be out in the open—not classed as business secrets.

The Necessity of Keeping Accurate Records in the Work of Pest Control

By ERNEST R. BARBER, President, Barber Laboratories, Inc., New Orleans, Louisiana

EDITOR'S NOTE: *Mr. Ernest R. Barber delivered the following address at the Fifth Annual Convention of the National Pest Control Association at Memphis, Tennessee, October 26, 1937. There are several forms and letters referred to in his address, and if any readers are interested, we suggest contacting Mr. Barber directly at 1200 South Broad Street, New Orleans, La.*

IT WOULD seem when you review the necessity of keeping records from the viewpoint of any particular profession or commercial firm that, excluding architects, there is no other firm that should keep accurate and get-at-able records as the pest control operator. It is obviously the object of every pest control operator to not only succeed in his business but to develop it into a really worthwhile business. And we know of no other way of attaining this end other than doing real, honest, capable work. All the advertising in the world will not bring in continuous business unless the work or products behind it bring economic results. And it is only by keeping in contact with the clientele of the business and giving such service that they will in turn recommend the good work to their friends.

Naturally, I can only give my experience in the 16 years that our firm has been launched on the sea of commercial pest control. It was with considerable trepidation that I resigned from the scientific work with the U. S. Bureau of Entomology to go into this field of work as it was almost an unknown quantity. But I had been thrice blessed in my Bureau work. Firstly, I was directly under the supervision of Dr. W. D. Hunter in the research work of Southern field crop insects. Dr. Hunter was a wonderful man to work for, and while working on the Argentine Ant and its control I was also detailed on sugar cane insects, the Southern army worm, a series of x-ray experiments with the distinct idea of sterilization. A little later, about the time the World War started in Europe, I was transferred to work with Dr. L. O. Howard, then Chief of the Bureau of Entomology, in a very wide series of experiments to control the house fly which at that time was called the Typhoid Fly, the worst disease carrier the world has ever known. A year and a half later I was returned to Dr. Hunter's division but only for a short time for a very serious outbreak of Cottony Cushion Scale developed all over the city of New Orleans. Without the controlling factors of the celebrated Lady Beetle, "Vedalia Cardenalis," and in the presence of the Argentine Ants this Cottony Cushion Scale flourished and developed almost like a fire. Large sixty foot trees were so heavily infested that many of them died, and from the fact that the Cottony Cushion Scale has more than 400 host plants, it was very necessary that something be immediately done. As I happened to be right in the midst of all this I was placed in charge of control operations under Dr. C. L. Marlatt who at that time was in charge of tropical and subtropical fruit insects. By January of 1918, this work had been satisfactorily ended and I was once again back with Dr. Hunter on Southern insects, and I was transferred for two summers to Cuba to introduce sugar cane insect parasites. This work, while extremely interesting, was fatiguing under the hot tropical summers. However, this work was successfully conducted, and upon returning to New Orleans in 1920, another pest had started a rampage on the New Orleans flora. This was the first finding of the Camphor Scale in the Western Hemisphere and, like the Cottony Cushion Scale, it had very many host plants. It was taken on 273 different species in New Orleans. A great damage was being done, and I was placed in charge of the control of this insect under Dr. A. L. Quaintance. This was extremely interesting work as little was known of the Camphor Scale and at that time there was apparently no spray material manufactured that would control it. It was necessary to develop the Lubricating Oil Emulsion in order to get an effective control.

As the association of the Argentine Ant with the Cottony Cushion Scale and the Camphor Scale was so evident, and as I had worked out an economic control of the Argentine Ant previous to 1915, I thought it would be a splendid idea to put over a city-wide ant campaign. It was a huge experiment and resulted very effectively. The campaign cost $62,000 and a total of nearly a million cans were placed out over the length and breadth of the city of New Orleans, and the money was all raised by popular subscription, and upon the completion of the campaign there were very few ants left in the city. I had looked over a series of city blocks shortly after the completion of the campaign, unable to find a solitary Argentine Ant. And to such an extent was the Argentine Ant eliminated that the Native Red Ants came back into their old territory and in many places of the city they are still in undisputed possession to this day, 17 years after the ant control was put on.

From these rambling high-lights of my entomological experience I would say then that this was the second blessing which my work afforded. And the third was the fact that I had been located in New Orleans, almost the most sub-tropical section of the United States, where the insect fauna and the flora are undoubtedly greater than in any other spot in the United States. Frankly, I know of no other spot in the world where a person can go out and in just a few hours collect 80 to 100 different species of scale insects. This can be done in New Orleans. So that the field was fertile, people knew the damage done by the many insect pests. Many of them also knew of my work with the Bureau of Entomology, knew of my results, and this naturally helped tremendously in launching the Barber Laboratories, Inc.

Naturally, in pioneering in real, honest-to-God, insect control, my firm made numerous mistakes. This was unavoidable. Incidentally, they have had to pay considerable money for mistakes made and when all is said and done, the experience we buy is worth a great deal more to us than what we obtain gratis from others. In the progress and development of this work with its many phases we found the keeping of accurate records indispensable, and on not a few occasions our records stood behind us as real evidence, so that the system which I have set up in the progress of the Laboratories has naturally been developed through exigencies and will be not entirely applicable to other members of the National Pest Control Association. However, I hope that our methods may be of service in one way or another to each one of you engaged in this work.

* * *

At the present time we have almost ten thousand customers on our books. That means ten thousand charge accounts. We have perhaps that many more customers who pay cash, for since the beginning of the depression we have endeavored to prevent opening new accounts if there was any doubt whatever as to the customer's ability to pay. It is possible that 20% to 25% of our charge accounts do not give us enough business to make them profitable. On the other hand, we must keep records on all of them.

Furthermore, we have made every effort to round out a business which will operate smoothly throughout the year. A business of this kind can only be operated by trained, conscientious employees. They must be kept on a salaried basis and, as far as possible, be kept busy throughout the calendar year. With an overhead of about $85 a day, it is very essential that the business be continuous, so that we have done considerable advertising throughout the 16 years' operations. We have spent in the neighborhood of $100,000 in all forms of advertising in New Orleans and Houston. We believe that most of this money was well spent to secure a clientele which would be steady and capable of giving us sufficient business to carry on. Roughly speaking, our termite work in New Orleans and Houston averages about $25,000 a year. We are very confident we could make it larger than this but this is taken in stride with the rest of our business. In the spring and fall we have the Ant Poison sales which perhaps total about $25,000 a year. This means the placing out of about 100,000 cans. Then in the quiet winter months, along with the termite work, we have the sale of our winter dormant spray, Alphacide. We have about 400 agent-dealers who buy perhaps 1 to 10 or more drums of Alphacide and distribute it to their customers. We also, during the winter, fill out of town orders, and through advertising we do a considerable amount of dormant spraying, some years as much as $5,000 worth. In the hot mid-summer when most of our worth while customers are vacationing we experience a lull which is not conducive to good business, but there are the regular routine jobs such as summer spraying, fumigating, termite work, etc., which go to round out the calendar year. We simply emphasize these details as we believe they are very necessary in the conduct of a real continuous business.

All the service work we do is absolutely guaranteed. Any time a customer is not satisfied we cancel the account or refund the money if this has already been paid. This is very necessary to keep the good

(Continued on page 8)

will of our many customers. As one bad apple will rapidly spoil a whole barrel of apples so one ill treated customer can do a great deal of damage to a business such as ours. This is a very important detail.

From our records covering 16 years, we have a background which gives us a great deal of confidence in everything that we do, and until a recent change in the State law of Louisiana we did not hesitate to give a 10 year guarantee on our termite work. In New Orleans we have done about 2,000 jobs. Every one of these jobs are double-card indexed, the one under the name of the owner, the other under the property number. So that should the property change hands we can quickly find in our files all our records. Naturally, we have competition. Some of our competitors charge a great deal less for work than we do but they do not guarantee it to the same extent. We do our utmost to keep each client year after year, giving them the best service we know how. For this reason, we inaugurated an annual inspection service of our earlier jobs on which we had only given a 2 year guarantee. By this service we make an annual inspection for $3 to $5 a year taking care of any small termite infestation which might spring up without additional charge. Each inspection service is kept in a separate file arranged under the month of the year in which the inspection is made. For instance, all the October inspections are taken out in the beginning of the month and all these inspections are made and reported on as they come due throughout the month. Then they are put over until October, 1938, when they will be again treated similarly. We have many hundreds of these and we are adding to them continually at the rate of 3 or 4 a week. Each 10 year guarantee, after the 2 year State guarantee had ended, was put in this list with the other annual inspections. After inspecting for a number of years should we find a heavy infestation spring up, we simply write the owner giving him a complete record of what has transpired over the years since we did the work and request that the job be done over again thoroughly, and in perhaps 200 such jobs we have had only one refusal. This is the fruit of real endeavor. We actually do not go to see these people. We are so thoroughly convinced that they will abide by our decisions that we mail them the report and estimate. And in every case, save one, we got the reply to go ahead. When we make our first inspection we draw a card to scale. On this we mark the name of the customer, his address, the date, his telephone number. On the diagram we show all the necessary corrections and repairs. We show the termite evidence in red. We show the danger spots, such as terraces, hollow tile, chimneys, hollow buttresses, etc. We also show the treatment we are going to make. We give the client the number of lineal feet, any concrete which must be drilled, the amount of Termicide we are going to use, and the estimate. We make three carbon copies from this card, the one for the customer, the one which we keep in the files, and the third copy for a contractor or architect who may want to go over the plans in detail. Every year this card is taken from the files as notated above, and on the back of it is notated the condition of the wood work and any other entry such as leaky plumbing, broken drain pipes, etc. This is reported to the client directly from this card which is then filed away until the next annual inspection. Property is often sold, and as soon as we discover that one of our houses has been transferred we get in touch with the new owner giving him the history of the work, the conditions at present, and requesting that this be continued. We call this annual inspection service "termite insurance." It is seldom indeed that we do not receive a written request to carry on. As a brief illustration: 6 years ago we treated a large mansion for a Mr. Henry Fordtrain, No. 28 Audubon Place, and 5 years ago we treated a house at 1525 Short Street for Mrs. C. L. Jaques. Both of these properties were sold not long after the work was done. Mrs. Jaques purchased another house which she had us termite proof. Mr. Alexander, who purchased Mrs. Jacques' house, later sold it and purchased the Fordtrain mansion, so we wrote to him requesting the continuance, and also asked for the name of the man he had sold the Short Street residence to. He wrote back asking that we keep up the inspection work on his new residence and informed us that he had sold his old residence on Short Street to the Mayor of the city. We immediately wrote to his Honor who wrote back telling us to continue the inspection service. Mrs. Jacques, the third party, sold her Pine Street residence and purchased another one which she again had us termite proof. So that we give this particular outline to show how we do carry on this work, jealously guarding each job we do and giving the very best service we can. Naturally, we do not get nearly all the jobs we make inspections for, but as we consider it costs us about $5 to make each inspection and report we take care of these religiously, having them cross-indexed under owner and property number and very many of these come back to us after a few years as work done by a number of our competitors does not stand up as long as it should and we get them. We do not state this with any idea of bragging but simply to exemplify the necessity of FIRST CLASS WORK. So much for the termite work.

We keep a very consistent record of all the ant cans which we place out and guarantee for 6 months. This is very necessary for in the beginning, with our implicit faith in human nature, we found that some of our customers were turning in complaints and running for 2 or 3 years on the original placement of 12 cans which cost them $2.50 and, as stated before, we only guarantee these cans for 6 months. So that when giving each customer a receipt for the cans placed out this receipt has printed on the bottom of it "This Receipt Is Your Guarantee. Keep It." The duplicate is brought back and checked with our telephone order list to make sure that the cans have been placed out, and then after the monthly segregation they are placed alphabetically in a file so that if Mrs. Smith or Mrs. Jones puts in a complaint we immediately go to the file to find when she bought the cans so that we will know whether her complaint is legitimate. Of late years a number of our good customers have hit on the bright idea of making a complaint about 3 or 4 days before the end of the 6 months with the idea, of course, of getting new cans which would give them another 6 months freedom from ants. This, of course, we refuse to do. We will put out fresh cans and give them a discount for the year in connection with the complaint, or we will simply place out a few cans to take care of the situation for the balance of the contract period. This is also true of our records on fumigation, on spraying, or any other work we do. Our records are kept so that we know exactly when the work was done and whether our customers are playing fair with us or not. Occasionally you will find someone who will invariably try to get the best of you. These people we discontinue from our list as they cost us more trouble than they are worth. We have found this a good policy.

Then in connection with the financial end of the business we continually check on our progress. For instance, as I dictate I have in front of me a daily bank balance, the weekly report on sales. For instance, our sales for the first two weeks in October total $1,406. These are broken down, of course, to local cash sales, merchandise sales, etc. Then I also have at the end of each month a statement showing the total sales of the month, the total cost of materials by segregation of products, salaries, incidental expenses, advertising, garage expenses, stationery and printing, taxes, interest, and insurance. All these expenses are totaled and deducted from the total sales giving the profit for the month. This can then be very quickly compared with the same month in the previous year to know just which way we are going. These monthly statements have been compiled since January, 1925, and it gives a wonderful cross section of the conduct and progress of the business and, incidentally, the condition of the times. Whereas, in 1927, we did a $90,000 business, now we have to be contented with a business slightly under $50,000, and it is really remarkable how the business progresses from these records. For instance, when we show a nice monthly profit we do consistently more advertising the following month or at such times as it will produce the most good. We feel exactly like a captain on a ship who has all his charts and his instruments for locating just where he is. There is really no "dead" reckoning and we can often cut costs when we know just what has to be done in the sailing over the stormy sea such as the depression we have just come through.

In our business we must eliminate errors. It hurts to get an order and discover a week later that order, through an error, was not filled. So that each order as it comes in is immediately made out in triplicate, the number one copy to be sent to the customer, the number two for our bookkeeping department, and the number three copy goes to the factory. This must come back O. K.'d before we write to the customer sending him the invoice. This excludes any mistake except that once in a while in a hurry where there are a number of different products ordered there may be a slight mistake to creep in. These are all taken care of to the best of our ability. In the same way we make a duplicate copy of every telephone order that comes in whether it is for 50c or $5, and when the delivery has been made and the signed duplicate brought back to the office these are checked with the orders to make sure that everyone has been taken care of. When there are 10 or 12 employees all working on perhaps 50 to 100 orders a day, it is quite complex and really needs some system to keep track of each detail. Naturally, I can not do this personally so that it is necessary to have a check and double check on every order.

The question of filing correspondence comes next. This is considerably complex. Quite early in the work of the Laboratories we received a letter from a lady in Galveston. The letter was filed. We could not remember the lady's name, and still it was very imperative that we obtain it for reference. We had no way of locating it except to go through a large number of filed letters and we finally did locate it by going back through the stenographer's notebook, and in this way getting the lady's name. So that I inaugurated a method of filing each letter under a number. These are bound at the end of each month cover-

ing the correspondence of the month. An alphabetical card is filed, one for each letter, and, furthermore, we list the letters written each day under the number just the name, address, and state, from which the letter came. I show as a proof of this 2 letters received from Little Rock, Arkansas, the one written in July, 1935, the other in June, 1936. I had remembered these letters as I considered them "long distance advertising." In the one case we were recommended by a lady in Jacksonville, Florida. In the other case we were recommended by a Dr. Bowen of Nashville, Tennessee. These letters were in the files, numbered as you will see, and we had no idea of the names of these parties, and still in 5 minutes by going directly to our records we found these letters which tell their own story. We have also inaugurated a number of other systems but they are not really applicable to the average firm, and I believe that these records which we have produced will more or less show conclusively the necessity of keeping accurate records in such a business as ours. In closing I want to emphasize the necessity of doing real, thorough work, with the developing of a real clientele who recommend your work to others and whose word means everything in the progress of your business. That is the real advertising, and it might interest you to know that every dollar that comes into the Barber Laboratories throughout the year comes in entirely on its merit. We have no one out selling anything to anybody. We do advertising. We do answer inquiries. We do try to give the best service we know how.

It is excellent to have a giant's strength; but it is tyrannous to use it like a giant.

—William Shakespeare.

N. P. C. A. Harpoons a Seal

ADOPTION of its present name by the National Pest Control Association crystalized action on a new official seal, for which there was already a growing sentiment.

A study was launched. Suggestions, some in the form of completed drawings, were contributed by 46 member firms. Hundreds of standard and re-designed trade-marks and seals were examined. With counsel of an eminent authority, ideas from many sources were reduced to terms of design. Twelve ink sketches were prepared to help visualize results; from these, one was eventually selected as basis for the new seal.

From Bugs to Art may seem a far cry. But everyone has noticed the parade of new packages for all manner of goods Manufacturers have been equally alert, and for similar reason, in modernizing their trademarks, and in this trend have been joined by a host of other business and non-business organizations.

The keynote of modern design is utility —doing the job. Emphasis is upon simplicity and legibility; ornamentations is "out." It would be difficult to find a redesigned package or trade-mark or seal which is not an obvious improvement over the old.

Analyzing the requirements of a seal for the N.P.C.A., it seemed that the dominating feature should be the name itself. Because the new name is unusually descriptive, it affords almost self-sufficient identification. It was desirable, too, that the words be in natural reading position—horizontal, and so proportioned and arranged as to be readable at a glance.

Tradition associates certain symbols with many of the older callings: chemistry, medicine—to barber and pawnbroker. If the Pest Control Industry is to have some such device it must invent one. Several ideas along this line were tested, without notable success. There was general disapproval of picturing insects or rodents; the use of any one tended to restrict the scope of the industry to that particular species.

It would be easy to symbolize some aspect of pest control, such as science, health, protection, but here also the use of one would by inference exclude the others. And there is divided opinion as to which phase is of first importance.

The alternative to either the improvised or the borrowed symbol lay in the more general or inclusive type. The figure most accurately representing the character or aims of the organization was the logical and obvious choice. The selection was the Torch. Not, in this case, the conventional static torch, but one in motion, advancing, "going places." The Torch signifies Progress. Secondarily, Leadership. Is anything more characteristic of the Association's actual record? Or more expressive of its recognized ideals and aims?

The new seal is severely simple. It is dignified, and sound in symbolism and in design. Free from fine detail, it is capable of a clear impression in the small sizes of ordinary use. It will gain constantly in familiarity and in significance.

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Concerning the Arsenic Scare

By DR. JOHN G. KREER Technical Director, American Lumber and Treating Company

EDITOR'S NOTE: *It is understood by all pest control operators that basic poisons are almost a necessity in pest control operations. There is not a pest control operator who would wish that no poisons be used but so long as certain poisons have an important place in pest control, it would seem best that the industry watch for both the brazen or subtle attempts on the part of manufacturers and supply houses and even pest control operators who unduly try to scare the public because certain non-toxic substances are sold on used. Sodium fluoride is known to be efficacious in roach work; thallium sulphate, strychnine, etc. have been found valuable in the extermination of rats and mice; arsenic has proven its value in many ways. In the last analysis it is the use and method of application that counts. In termite control work we have seen letters attempting to frighten people in terms of competitors knocking the product of the other, etc. It seems best that our efforts should be directed toward proper education to clear up misdirected statements with full realization that a pest control operator will use whateven the product might be with that degree of care that takes into consideration such precautions as should prevail when there are present such factors as the following that require caution: Poisonous nature; inflammable nature; sensitivity to touch and skin or human system in general. The short article by Dr. Kreer is intended to be of service to those who are finding success with certain products that may have an arsenical content whether it be for rats and mice; or Termites or whatnot in the pest control field.*

IN THE 1935 annual report of the Chief of the Bureau of Entomology and Plant Quarantine, addressed to the Secretary of Agriculture, there appears on page 64, the following statement:

> "A study was made of the lead and arsenic content of all chewing tobaccos and seven snuffs, requiring the development of satisfactory methods of analysis. In the samples analyzed, the lead content of the chewing tobaccos ranged from 0.025 to 0.610 grain per pound, and of the snuffs from 0.088 to 0.935 grain per pound. The arsenic content proved in some cases to be higher than was expected on the basis that lead arsenate had been used, but this may have been due to the additional use of other arsenicals."

Spraying is generally done with lead arsenate of the formulation $Pb_3 (AsO_4)_2$, a compound with molecular weight approximately 900. This is made up of three parts of lead of molecular weight 621; two parts of arsenic of molecular weight 150, and eight parts of oxygen of molecular weight 128. This would make the metallic arsenic content 16⅔%, compared to 69% for the metallic lead. Arsenic, however, is generally reported as equivalent arsenic oxide, As_2O_3 of approximately one-third more weight than metallic arsenic content. The ratio then of As_2O_3 to metallic lead, as determined, would be 22 to 69, which for the purpose under consideration may be taken to be about one-third.

This means that an average content in tobacco and snuff, as investigated by the Laboratory, contained in excess of three-tenths of a grain of arsenic oxide per pound of tobacco.

Now, in the Pure Food and Drug Act, the U. S. Government has gone so far as to stipulate that foods must be rejected when they contain as much as 0.01 grains or arsenic oxide, As_2O_3, per pound of food material. With the presence in all tobacco of some thirty times the quantity set as a top limit by the Pure Food and Drug Act, it would seem surprising that smokers or tobacco chewers could survive at all.

This is just one more instance of the peculiar mental attitude of a certain small faction of the public toward arsenic, indifferent to facts but swayed by specious and plausible arguments into an unreasoning fear. The fanatic, with his vicious assault on the object of his antagonism, is not confined to religious circles but appears in a great variety of forms associated with almost every different field of human activity prohibiting drinking, prohibiting smoking, prohibiting motor trucks transporting freight, prohibiting Sunday amusements—prohibition once inaugurated as a "cause" recognizes no bounds to its efforts to have its own way by any means however irrational or unfair; and almost always a handy weapon is found in the propaganda of fear.

For about one-hundred years recurrent attacks have developed on the use of arsenic in the industries and arts, originally set in motion by selfish commercial interests, but long since taken up by faddists and involved in all the bitterness of partisan controversy that has completely lost sight of its original purposes.

Let us consider the sworn testimony of Prof. C. F. Chandler, a learned scholar with the degree of Master of Arts and Doctor of Philosophy at the University of Gottingen, Doctor of Medicine from the University of New York, and Doctor of Laws from Union College, member and one-time president of the American Chemical Society, chemist in the New York City Health Department for six years, and president of the New York City Health Department for more than ten years, who testifies that as president of the Health Department, it became his duty to seriously consider the subject of arsenical poisoning from wallpaper, when the subject was agitated in Michigan and Massachusetts, since the burden and responsibility to enforce any proper regulations by the Board of Health lay upon him; that he had, therefore, seriously considered the whole subject, read everything that had been published of weight or of value AND CONCLUDED THAT THERE WAS NOTHING IN IT; and that for that reason no action was ever taken by the authorities in New York; that he had been unable to find any case of such poisoning ever having occurred in New York City; that he could not find any physician who had ever heard of such a case and that the physicians did not believe in it.

A characteristic instance of the form of evidence supplied is the case of the report by Dr. Halley, who claimed to have detected arsenious acid in the atmosphere of his study, the walls of which were covered with green paper. The test employed was "sheets of paper soaked in a solution of ammonia-nitrate of silver." Dr. Halley reported that on this paper were deposited numerous well-defined crystals of arsenious acid, visible under a low power with the microscope, and that the form of these crystals precluded any possibility of a mistake.

Now it is true that ammonia-nitrate of silver is a test for arsenious acid, but it does not function at all in the manner that Dr. Halley supposed. It does not cause the deposition of crystals of arsenious acid (which are colorless) but produces a bright yellow precipitate of arsenite of silver, provided the amount of ammonia be very exactly proportioned to that of the nitrate. If such be not the case, no precipitate is formed. This absurd instance is almost typical of the guess work and flimsy evidence on which the arsene gas scare has always been based.

An industrial field, in which the true facts about arsenic and arsene gas have some bearing, is the use of termite and decay resisting chemical treatment for lumber used in the construction of buildings. It is true that such application has been going on for a generation without anything of an injurious or even of a suspicious nature ever having occurred. As competition in the field of wood preservation develops, however, there occur every now and then sporadic efforts to gain commercial advantage by propaganda against the use of arsenicals for preservative impregnation of lumber in building construction.

Since the net salt retention in accepted wood preservative treatments does not exceed 3-100 to 4-100 of a pound of As_2O_3 equivalent per cubic foot of wood, there would be seven or eight grains per pound distributed deeply in the interior.

It is quite evident, of course, that there is no kind of direct contact hazard, nor even any remotest possibility of an indirect effect through contact by articles of food. Not even a life-time of cumulative effect could provide a sufficient amount of arsenic to be injurious to anyone dwelling in a building where treated lumber is used. But this is not the basis on which the propagandists seek to discredit chemically treated lumber. Instead they resort to a far more mysterious agency concerning which they can argue without fear of the layman appreciating the preposterous nature of their arguments. They say that certain forms of mold are known that are able to thrive on food supplies containing arsenic and they suspect that in the metabolism of these molds, some of the arsenic might be converted into the highly poisonous hydrogen arsenide or arsene gas.

This is the same argument that has formed the basis of dispute for more than 100 years; since the first arsene gas scare in connection with the use of arsenic pigments for wall paper first developed, concerning which the testimony of Prof. Chandler has been quoted above as leading him to the conclusion that there was nothing in it. In the case of wall paper, there was at least a good feeding ground for the molds provided by the starch paste used to hold the paper to the wall. The molds are not wood destroyers and do not break down cellulose, but feed on the soluble sugary and starchy compounds, and when observed on wood procure their food supply from the sap ingredients without disturbing the cellulose of the wood structure itself.

In the case of preservative treated building lumber, the wood has been for a long period of time subjected to vacuum submersion in strong chemical solutions and long continued pressures at high temperature. Whatever food supply in the form of sap ingredients there might have been on, or just under the surface of the wood, has in the course of the treatment and the subsequent kiln drying been so dispersed

and altered that it is inconceivable that a suitable medium for mold growth would be found on the surface or the shallow substratum.

Without a reasonable food supply, there is no basis whatever for the expectation of any growth of mold on such lumber. Nobody expects molds or any other creatures to develop on an exclusive food supply of quite toxic or poisonous material. We can under very artifical conditions provide a medium containing very small amounts of toxic material on which molds can be made to grow, and it is a matter of common knowledge that toxic materials in exceedingly small quantities can function as stimulants rather than poisons; but it is a far cry from the finding that metabolism of certain creatures can involve minute quantities of poison to the doctrine that they can live on the poison itself, and thrive to such an extent as to liberate the relatively enormous quantities compared to their own bulk that would be involved in producing sufficient arsene gas to bring about an injurious effect.

The art of wood preservation has in recent years been peculiarly interested in developing a clean, non-odorous preservative that would not introduce any fire hazard, so that the treated material would be suitable for building construction. The two primary purposes of the treatment were protection against the growth of wood destroying fungi and protection of the wood from the ravages of termite infestation. Incidentally, it was desired to specifically inhibit mold growth on the surface. While the molds are not wood destroyers, they do have an effect on the appearance and the permanence of paint coatings on the wood. During the past few generations, many things have been tried in the hope that they might serve the purposes of wood preservation effectively. In fact, just about every by-product of the chemical industry has been offered to the wood preserver. When no other use could be found for the waste of some industrial process, the producers seemed to take it for granted that it must make a good wood preservative.

There are individual chemicals that will quite effectively do some one of the things that need doing to provide properly treated lumber for building construction; but as Dr. Wolman insists, the requirements are so divergent that it is unreasonable to expect to find such opposing characteristics all in one single chemical. More and more, we are becoming convinced that the scientific combination of a number of different chemicals alone can provide the accomplishments we seek from a modern wood preservative.

An intimate knowledge of the characteristics and habits of the termite leads logically to some form of arsenic compound as a specific indication. A slow working poison is desired and one that can be handed on from individual to individual under the cannibalistic procedure of termite colonies. It is rather desired to have toxic material that will affect the protozoan parasites that are essential to the termites' digestion of cellulose as food, and any quick killing poisonous effect would warn the termite colony instead of undermining and destroying it.

Arsenic in suitable form is also an excellent toxic material against wood destroying fungi. This characteristic was long overlooked in the art because so much attention had been given to the spectacular quick killing poison effect of certain forms of arsenic.

There is as wide a difference between arsenic in the form of the cacodyl and arsenic as hydrogen arsenide (arsene gas) as there is between different forms of chlorine. Chlorine combined with hydrogen to form hydrochloric acid is just about as virulent as the arsenic combined with hydrogen; while chlorine combined with sodium, is the common table salt that we consume daily in large quantities.

All of the different chemicals must be balanced in composition so as to provide stability in the mixtures and in the treating solutions after dissolving in water; and to be really serviceable, must stand heating up to boiling without breakdown of any sort. Then, there must be a mordant effect by some one of the ingredients, so that powerful fibre fixation will be effected. This property has been found in chrome salts, long used as mordants in the dye industry to provide fast colors, but which in addition, have a remarkable chemical character, such that in solutions contacting lignin in the interior of impregnated wood, they will undergo a reducing action and chemical combinations be formed between the chrome and the arsenic on the one hand, and the chrome and fluorine salts on the other hand to precipitate out of the drying solutions in very difficultly soluble form. This is the characteristic that lends permanence to modern, clean chemical treatment of wood and which marks one of the greatest forward steps in the wood preserving industry. This same chemical reaction makes such chemically treated wood safe against leaching out of the wood preservative, as well as immune to any possible development of arsenical gases.

The commercial development of this type of wood preservative dates back about

(Continued on Page 12)

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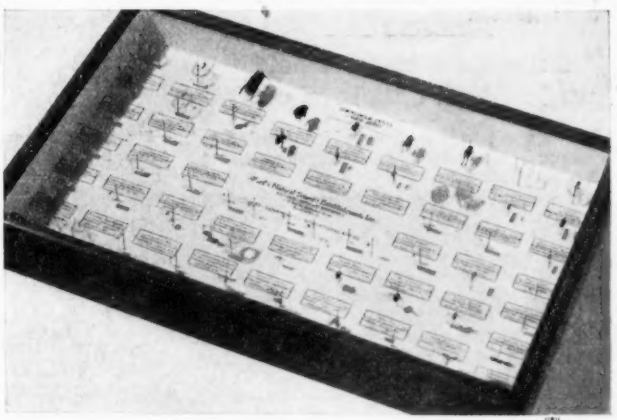
Fifty of the most important household and industrial insect pests that can be controlled by the exterminator are included in Ward's Master Reference Collection. Labels give common and scientific names and habitat of insects. The whole is mounted in a handsome glass-topped wooden exhibition case. Your letterhead or a large printed label can be included. Smaller collections of species of your own selection are available.



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thirty years when chrome first began to be used for its passivating effect to prevent corrosion of metal fastenings in contact with chemically treated wood. Gradually, as experience with chemical mixtures for wood preservation was gathered, improvements were developed and along with the "WOLMAN SALTS" Triolith and Tanalith, there appeared Basilite, Syllit, and several others with variously modified composition based on the fluoride. During the same period, numerous efforts were made with both zinc and copper salts put into difficultly soluble form. It is, however, not sufficient to just merely precipitate difficultly soluble chemical compounds, but in addition, these precipitated or fibre fixed chemicals must retain highly toxic effects on both the wood destroying fungi and on insects that use wood as food.

In the April, 1937, issue of the Journal of Economic Entomology appears quite an important editorial by Dr. C. L. Metcalf, at the head of the Department of Entomology of the University of Illinois, that is quite pertinent to this subject and from which we quote the following excerpt:

> "How many cases are proved of death from spray residues on human foods? Careful analysis of this matter will doubtless show that the danger of death from spray residues is about in the class of hazard of being killed by a golf ball or by falling out of bed. Disasters from the consumption of alcohol render the danger from spray residue microscopic in comparison. People are killed or crippled every week by slipping on polished floors far in excess of the numbers who expire from spray residues on food. So far, no law fixes a "smoothness tolerance" for floors in public or private buildings, but the federal Insecticide Division is said to spend the majority of its appropriation ferreting out violations of spray residue tolerance."

Extermination of Latest 'Invaders' Will Cost Total of $60

If you want to see a war without going to China or Spain, stop by the Allegheny Court house on Grant St.

It's a one-man war, and is waged against insects.

The Warrior is Fred Pollock of Pittsburgh. He was hired by the county to rid the Courthouse of tiny insects because he is a registered exterminator. He's been in the business eight years.

Mr. Pollock's weapons are three: A mask to keep his lungs clear of the gas which comes from the "bug" powder; a gun or squirter with which the powder is shot on walls, in corners, or wherever the bugs crawl, and a 100-pound bag of flour-like powder.

Mr. Pollock's technique is to start at the top of a building or house and work toward the basement, prodding the live insects ahead of him as he descends.

He doesn't charge for his services, only for his especially-made powder. His bill to the county will total $60, county agents said yesterday.

"I've looked into the history of the insect plagues in this Courthouse—and they seem to hit this fine building every so often—in waves or cycles," explained County Property and Supplies Director Harry T. Aufderheide, who hired Mr. Pollock.

"Mr. Pollock will finish the work at the end of next week, he tells me. The expense is worth his hire, for I'd like to keep this building 100 per cent sanitary and lick these bugs forever," he said.—Pittsburgh Press.

The Insect Parade—Part VIII

By PROFESSOR HOWARD O. DEAY,
Department of Entomology, Purdue University, Lafayette, Ind.

ORDER COLEOPTERA

The Beetles

AS APPROXIMATELY two out of every five species of insects are beetles, the Coleoptera is by far our largest order of insects. It is also one of the most important orders, not only because its members attack and destroy all kinds of growing plants and plant and animal products, but also because many of the species feed upon injurious insects, thereby keeping them in check.

Adult beetles are characterized by having four wings, the front pair of which, called elytra, are thick and hard and meet in a straight line down the middle of the back; chewing mouthparts; and complete metamorphosis. In the rove beetles (Family Staphylinidae) and some other groups the elytra are short and do not cover the entire abdomen.

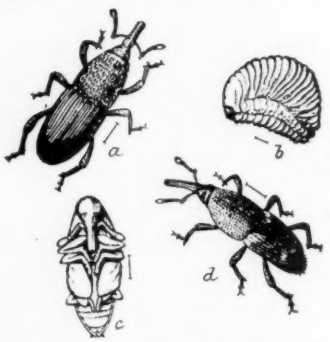

Fig. 48.—The granary weevil; d. The rice weevil. (U. S. D. A.)

In one of the divisions of the Coleoptera, the snout beetles, the head is prolonged into a snout which superficially resembles a beak (Fig. 48). This resemblance leads many to think that these beetles have sucking mouthparts. A careful examination, however, will reveal that it is the head and not the mouthparts which is prolonged. The mouthparts themselves, although much reduced, are of the true chewing type and are situated at the end of the snout.

Since the Coleoptera have complete metamorphosis, there are four stages in their development—egg, larva (growing stage), pupa, and adult. The larvae of beetles are commonly called grubs. They are usually white and soft bodied, except in wireworms and mealworms, with chewing mouthparts, well-developed head, three pairs of legs on the thorax, and none on the abdomen. The larvae of snout beetles are exceptions in that they are entirely legless.

The beetles are ancient insects and seem to have changed but little in form through the ages. They have no close relatives, except perhaps a small, obscure order of parasitic insects, the Strepsiptera, or twisted-winged insects. They are primitive in that the mouthparts of both the larvae and the adults are of the chewing types. As a rule insects with complete metamorphosis do not have the same type of mouthparts in both the larval and adult stages.

The various species of Coleoptera have been very successful in adapting themselves to new conditions, and as a result they now live in nearly every habitat in which life can exist. For example, the water scavenger beetles live in water; white grubs in the soil; flat headed borers in living trees; stag-beetles in decaying stumps and logs; powder post beetles in dry wood; the Colorado potato beetle feeds on plant foliage; the cigarette beetle on dry vegetable matter; the drug store beetle on condiments; the lady-bird beetles feed on live insects; the museum beetles on dead ones; and one species, the beaver parasite, is a true parasite of mammals.

As indicated in the above paragraph, many of our most serious pests of both growing plants and stored products are beetles. In fact the Coleoptera is perhaps our most important order of insects when considered from an injurious standpoint. It should be remembered, however, that not all beetles are injurious, for many of them, as the lady-bird beetles and the ground beetles, are beneficial, since they feed on injurious insects, such as caterpillars, plant lice, and scale insects. In spite of the fact that hundreds of species are either injurious or beneficial, most of the species of Coleoptera, like most men, are rather neutral, just going through life without doing much that is either good or bad.

It is estimated by various authorities that between 180,000 and 250,000 kinds of beetles are known to occur in the world. Some 25,000 species, belonging to 111 families, occur in the United States. It is obviously impossible to even mention all of these families in a paper such as this; we shall, therefore, take up only the families which contain the most important economic species.

The Ground beetles (Family Carabidae). Ground beetles are so-called because they live on the ground, hiding under rubbish and stones. Most of them are easily recognized by their black color and long legs. Their antennae are long and thread-like, and there is a bean-shaped projection on each hind leg close to its place of attachment to the body. The larvae of ground beetles are long and parallel sided. They live in the same habitats as the adults but are not as commonly seen. Both the larvae and adult are predacious, feeding upon other insects. Since their prey are usually injurious insects, the ground-beetles are very beneficial. Over 2,000 species, many of which are very common, occur in this country.

Fig. 49.—A predacious diving beetle. (Kellog.)

The Water Beetles: There are several families of water beetles, the most common of which are the predacious diving-beetles (Family Dytiscidae) (Fig. 49), the water-scavenger beetles (Family Hydrophilidae), (Fig. 50) and the whirligig-beetles (Family Gyrinidae), Fig. 51). Some members of

Fig. 50.—A water scavenger beetle. (Kellog.)

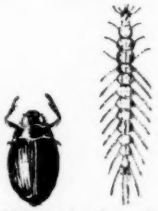

Fig. 51.—A whirligig beetle. (Kellog.)

the first two families are among the largest of our beetles, being over an inch in length. In spite of their larger size they are less well known than are the whirligig beetles, for they live in the water instead of on top of it as the whirligig beetles do. The whirligig beetles are those small to medium-sized black beetles which whirl and circle on the surface of ponds and the quieter places of flowing streams. Some of the species are called "apple bugs" because they give off an odor which resembles that of ripe apples.

The Carrion beetles. (Family Silphidae): The carrion beetles are rather large, varying in length from half an inch to over an inch. Their antennae are clubbed and prominent. There are two more or less distinct

Fig. 52.—Carrion beetles. (Smith.)

groups in the family, (Fig. 52). In one the body is stout and more or less cylindrical and there are usually reddish spots on the wings; in the other the body is very much flattened and there are no red markings. Most of the species feed on decaying flesh.

The Rove Beetles (Family Staphylinidae): The rove-beetles are very slender and the front wings (elytra) are very short, leaving most of the abdominal segments uncovered. Most of the species are very small, but some of them are nearly an inch long. They are very common about decaying animal matter. Some of the smaller species are attracted to lights.

Fig. 53.—A common firefly. (Smith.)

The Fireflies (Family Lampyridae): Nearly everyone has seen a firefly, or lightning bug (Fig. 53). The larvae and the wingless females of certain species are called glow-worms. The adults are slender, soft-bodied beetles with flexible elytra and long antennae. The light, which is remarkable in that it is composed almost entirely of light rays, is produced by light organs situated on the underside of the abdomen near the hind end in the adults and along the sides of the abdomen in the larvae. The fireflies are nocturnal, hiding by day and flying at night.

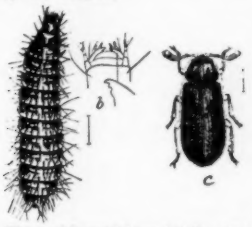

Fig. 54.—The red-legged ham bettle. (U. S. D. A.)

The Red-legged Ham Beetle Family (Family Corynetidae): The red-legged ham beetle (Fig. 54), is the only member of this small family which is of importance. It is a small, steel-blue, red-legged beetle about on-sixth of an inch long. It is found outdoors about dead animal matter, but it sometimes invades storehouses and attacks meats, especially hams.

The Blister Beetles (Family Meloidae): These beetles are of medium or large size (Fig. 55). The body is long and soft; the antennae long; the head is wider than the prothorax which resembles a neck; and the legs are long and slender. They are variously colored: some black, others gray and black, some uniform gray, and still others black with yellow stripes.

The common name comes from the fact that their body fluid causes a blister when

(Continued on page 14)

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Fig. 55.—The striped blister beetle. (Riley.)

it comes in contact with the skin. The dried, pulverized bodies of these beetles are extensively used in making blister plasters. The species most commonly used for this purpose is a European one known as the Spanish fly. Our American species possess the same blistering property.

The adult blister beetles do serious damage to vegetables and flower gardens, but the larvae are beneficial, those of some species at least feeding on the eggs of grasshoppers.

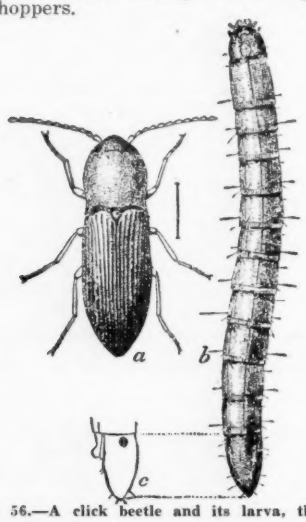

Fig. 56.—A click beetle and its larva, the wireworm. (U. S. D. A.)

The Click Beetles (Family Elateridae): The adults of this family are also known as snapping bugs, and skip-jacks because when they are turned on their back they will snap up into the air in an endeavor to right themselves. Our common species are medium-sized, somewhat flattened, uniform brown insects (Fig. 56). The larvae are called wireworms, and are long, slender, hard worm-like grubs which are brownish or yellowish in color. The form and hardness of their body gives them their common name. They are serious pests of agricultural crops. "Mealworms," which belong to the family Tenebrionidae, are often confused with them. The eyed-elater, one of the larger species of the family, is strikingly different in appearance from the common click beetles. It is a pepper-and-salt colored insect with two large, velvety eye-like spots on the prothorax.

Fig. 57.—The flat-headed apple tree borer, one of the metallic wood-borers. (U. S. D. A.)

The Metallic Wood-borers (Family Buprestidae): These beetles (Fig. 57), are slightly flattened, metallic-colored boat-shaped insects which range in length from ¼ inch to nearly 1¼ inches. The larvae are called "flat-headed" borers. They are white, flattened, legless grubs. The head is small, but the segments just back of the head are very much broadened and flattened. These borers do serious damage to trees by working just beneath the bark, although they usually do not attack thrifty trees. Occasionally they breed in unseasoned wood, which has been used in buildings or rustic furniture.

The Carpet Beetle Family (Family Dermestidae): This family of small beetles includes many of our serious household pests. They are plump, oval beetles usually not over a sixth of an inch long. They vary in color from uniform black to black with gray or brown markings. The larvae, which are very active, are covered with long hairs.

Fig. 58.—The black carpet beetle. (U. S. D. A.)

Fig. 59.—The buffalo carpet beetle. (U. S. D. A.)

There are over 130 species of dermestids known in the United States. The family as a whole feeds on skins, furs and dried animal matter. Several species destroy household stores and goods. Among the more important species are the larder beetles **(Dermestes lardarius)**, which feeds on such animal products as meat, skins, feathers and cheese; the black carpet beetle **(Attagenus piceus)** (Fig. 58), which feeds upon a wide variety of substances including insect specimens, cereals, feathers, carpets, and woolen goods; and the buffalo carpet beetle **(Anthrenus scrophulariae)** (Fig. 59), also known as the buffalo moth and the buffalo bug, which feeds upon carpets, woolens, furs and feathers. In all three of these species it is the larvae which does most of the damage.

Fig. 60.—The cadelle. (U. S. D. A.)

The Cadelle (Family Ostomidae): The insects of this family are oblong, flattened beetles, black or reddish brown in color. They resemble mealworm adults superficially. Most of the species live outdoors under bark, but one species, the Cadelle **(Tenebroides mauritanicus)** (Fig. 60), is a pest of stored grain and grain products in both the larval and adult stages. The larvae are whitish and resemble ground beetle larvae. In addition to feeding on grain both the larvae and adults are predacious, feeding on other grain inhabiting insects.

The Flat Bark Beetles (Family Cucujidae): The members of this family are very flat, elongate beetles, usually brown in color. Most of the species live under the bark of trees and are thought to be carnivorous. A few of them, however, feed

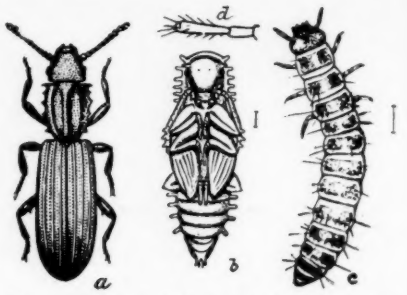

Fig. 61.—The saw-toothed grain beetle. (U. S. D. A.)

in stored grain, dried fruits, etc. The most important of these is the saw-toothed grain beetle, **Silvanus surinamensis** (Fig. 61). It may be distinguished from other small beetles infesting grain by its flattened form and the saw-like teeth on the prothorax.

Fig. 62.—A lady-bird beetle. (U. S. D. A.)

The Lady-bird Beetles (Family Coccinellidae): The lady-bird beetles, or lady bugs (Fig. 62), are small oval beetles which are usually red or yellow with black spots, or black with red or yellow spots. A great many people mistake them for carpet beetles or leaf beetles. The larvae are rather ferocious looking individuals, resembling alligators in general appearance. All of our species but two, the Mexican bean beetle and the squash lady-bird beetle, are very beneficial in both the larval and adult stages, feeding on plant lice, scale insects and other injurious insects. The Mexican bean beetle, mentioned above, is the most serious pest of beans east of the Mississippi River.

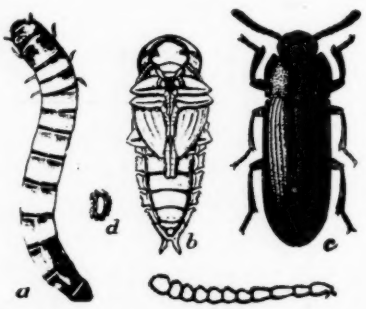

Fig. 63.—The meal worm. (U. S. D. A.)

The Darkling Beetles (Family Tenebrionidae): This is a large family of insects most of whose species are uniform black in color and resemble ground beetles. They can be distinguished from them by the absence of the bean-shaped projections at the base of the hind legs. The vast majority of these larger species inhabit the West and Southwest.

To this family also belong the meal worms (Fig. 63), and flour beetles which are among the most important of our stored products pests. The meal worms are the largest of our grain infesting beetles. The larvae resemble wireworms rather closely. Both the larvae and the adults infest grain

and grain remnants, especially if it is damp. There are a number of small tenebrionids which are known as "flour beetles". They infest cereals and other seeds, as well as various other stored products, but prefer flour and corn meal. The most important of these are the confused flour beetle, the rust-red flour beetle and the small-eyed flour beetle. Their larvae, which are small and white, are found in the same habitats as the adults.

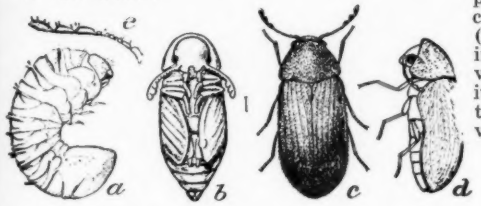

Fig. 64.—The drug store beetle. (U. S. D. A.)

The Death-watch Family (Family Anobiidae): These are small beetles with cylindrical bodies. They feed on dry vegetable matter and are often found boring in the woodwork of buildings. The death-watch beetle **(Xestobium rufovillosum)** bores in timbers of buildings and makes a ticking sound by striking its head against the walls of its burrows. This sound, heard in the night by people sitting up with the sick, was formerly thought to foretell death. Some have credited the psocids (Order Corrodentia) with making this sound.

Two of the better known species of the family are the drug store beetle **(Sitodrepha panicea)** (Fig. 64), which not only infests many kinds of drugs but also cereals, leather goods, cork, dried beans, flour, pepper, ginger and other condiments; and the cigarette beetle **(Lasioderma serricorne)** (Fig. 65), also known as "tow bugs," which infests tobacco in all forms and a great variety of food stuffs. In addition to this it seriously injures the upholstery of furniture by chewing through it to get to the vegetable material used in the padding.

Fig. 65.—The cigarette beetle. (U. S. D. A.)

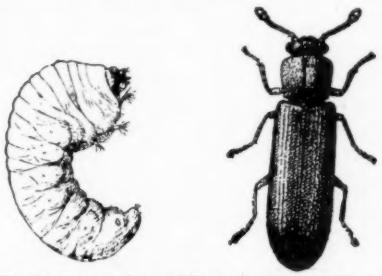

Fig. 66.—A powder post beetle, member of the family Lyctidae. (U. S. D. A.)

The Powder Post Beetles (Families Bostrichidae and Lyctidae): These are small, slender beetles (Fig. 66), which live almost exclusively in dry wood either in cylindrical burrows or beneath the bark. They sometimes infest wood to such an extent that it is reduced to a powder. These beetles are capable of establishing themselves in any dry sap-wood, such as rustic furniture, old furniture, floors, sills, and timbers, and are able to continue to breed in these situations for a long period of years. Some species are pests of stored grain.

The members of the two families can be distinguished from each other by the fact that the head is not covered by the hood-like prothorax in the Lyctidae as it is in the Bostrichidae.

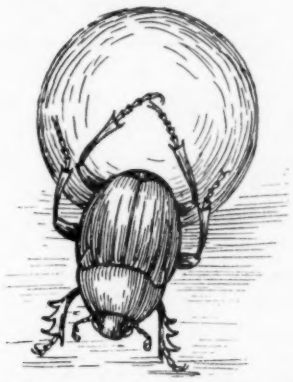

Fig. 67.—A tumble-bug. (Gen'l Biol. Supply House.)

The May-beetle Family (Family Scarabaeidae): This is a large family of beetles which vary much in size, but as a whole they are short plump insects. On the basis of their feeding habits the family is divided into two distinct groups—the scavengers and the leaf-chafers.

(Continued on page 16)

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Literature - Directions - Information on Request

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The scavengers all feed upon decaying vegetable matter, principally horse and cow dung. The most common members of this group are the tumble-bugs (Fig. 67), which receive their name from their habits of forming round balls of dung which they roll long distances and bury. One of the most noted of the tumble-bugs is the sacred beetle of Egypt. This beetle was venerated highly by the Egyptians because to them it symbolized the sun, the ball which they rolled the earth, and the 30 segments in the feet the days of the month. They placed it in the tombs of their dead, and carved its image in stone and precious gems.

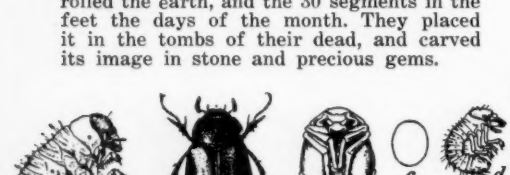

Fig. 68.—A May beetle and its larva, the white grub. (U. S. D. A.)

The leaf-chafers include some of our most important pests of plants. The larvae work in the ground on roots and tubers and the adults attack foliage. The most important species of these are the May-beetles, or June-bugs (Fig. 68), the larvae of which are called white grubs, the Japanese beetle, the rose-chafer, and the Green June-beetle —the June-bug of the South.

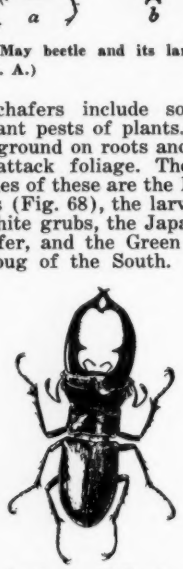

Fig. 69.—A stag beetle. (Kellog.)

The Stag Beetles (Family Lucanidae): These beetles (Fig. 69) receive their common name from their large mandibles which in some males are branched like the antlers of a deer. The larvae, which look like white grubs, live in decaying wood; the adults are found in or beneath decaying logs or stumps.

Fig. 70.—The locust borer, one of the long horned beetles.

The Long-horned Beetles (Family Cerambycidae): The adults of this family are elongate, medium to large-sized beetles with long antennae. The larvae, known as round-headed borers, vary greatly in habits, some species mining under the bark while others make large oval mines which extend into the heartwood and sapwood. As a rule they attack only living trees or unseasoned wood, but one species at least, **Hylotrupes bajulus**, attacks seasoned wood and may continue its destructive work over a period of several years. Among the important pests belonging to this family are the locust borer (Fig. 70), the apple-tree borer and the pine sawyer.

Fig. 71.—The 12-spotted cucumber beetle, one of the leaf beetles.

The Leaf Beetles (Family Chrysomelidae): The members of this family are short-bodied, chunky beetles which have short, thread-like antennae and four-segmented feet. Many of our most injurious pests of cultivated plants belong to this family, the injury being caused by both the larvae and the adults. Among the more common species are the Colorado potato beetle, the asparagus beetle, the striped cucumber beetle, the 12-spotted cucumber beetle (Fig. 71), the potato flea beetle, and the tortoise beetles.

Fig. 72.—The common bean weevil. (U. S. D. A.)

The Bean Weevils (Family Mylabridae): These are small beetles, the larvae of which live in the seeds of beans, peas and other legumes. Their elytra are short, leaving the tips of the abdomen exposed, and the head is prolonged into a short, broad snout. The larvae are legless and spend all of their lives inside the seeds. The common species in the family are the bean weevil (Fig. 72), the cowpea weevil, the four-spotted bean weevil, the pea weevil, and the broad-bean weevils. Most of these species enter the seeds while they are still in the field. The pea weevil and the broad-bean weevil do not breed in storage, but the other species do.

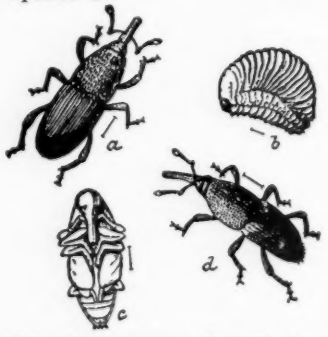

Fig. 73.—a. The granary weevil; d. The rice weevil. (U. S. D. A.)

The Snout Beetles or Bill Bugs (Family Curculionidae): This is a large family—more than 1800 species occur here—of slender beetles which are characterized by having the head produced into a snout or bill. The mouthparts, fitted for chewing are at the end of this snout. The larvae are white, soft-bodied, and entirely legless. Many of our important pests of growing crops, fruits, and stored grain belong here. These include the cotton boll weevil, which does more damage than any other insect in the United States, the plum curculio, the strawberry weevil, the corn bill-bugs, and the granary and rice weevils (Fig. 73). These last two differ from most other grain infesting beetles in that the larvae develop entirely inside the kernel.

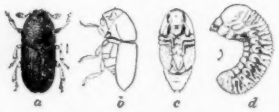

Fig. 74.—The fruit tree bark beetle. (U. S. D. A.)

Fig. 75.—Work of the peach tree bark beetle, one of the engraver beetles. (U. S. D. A.)

The Bark Beetles. (Family Scolytidae): These are small insects, varying from one-twenty-fifth to one-sixth of an inch long, and of a brown or black color. On the basis of their habits the family can be divided into two distinct groups—the engraver, or bark beetles (Fig. 74), and the ambrosia, or timber beetles. The engraver beetles (Fig. 75), work just beneath the bark of sickly trees and cut out characteristic tunnels or engravings. They are important pests of fruit and forest trees. The ambrosia beetles burrow in solid wood, and have the remarkable habit of growing fungi (ambrosia) upon which they feed on the walls of their burrows. Most of the ambrosia beetles attack forest trees, but a few species are known to attack wine and beer casks.

Do You Have a Hobby?

William Cowper, a celebrated English poet, born in 1731 in Hertfordshire, England, wrote:

"Absence of occupation is not rest.

A mind vacant is a mind distressed."

"Work first then rest," said John Ruskin. A simple way to describe a life of success and happiness.

Those of us who do not have a hobby—do not know how to play, will soon burn out —crack under the strain. Someone said, "as a meal is incomplete without dessert, so work is incomplete without a hobby."

A hobby is described by Webster's dictionary as, "A subject or plan to which one is constantly reverting in discourse, thought or effort; a topic, theme, or the like unduly occupying one's attention or interest."

"Absence of occupation is not rest,

A mind quite vacant is a mind distressed."

How Science Heard a Cockroach Heartbeat – and Why

WHEN science decided to let loose a terrific onslaught against that common household pest, the cockroach, the learned scientists soon aided and abetted their volleys with knowledge gained by exhaustive studies of the heart-beats of the little insects. The scientists even went so far as to take micro-photographs of a roach's heart-beat.

Now, while the common, ordinary and everyday brand of cockroach may be merely a gosh-awful nuisance to the housewife, to the microscope peering scientist the evolutions and physical anatomy of the insect heretofore have had a great appeal —a sort of a challenge, it seems, to his thirst for knowledge.

The clamour of a million housewives, bent on exterminating the entire insect family of roaches, proved too much for the United States Department of Agriculture research laboratory. Accordingly, the scientists' researches anent roaches took a lethal trend, and the microscopes and microscopic cameras were trained on the heart of a cockroach, to record for posterity the reaction of the insect's heartbeat to various and sundry poisons and insecticides. It was all part of an intensive search for a more effective poison.

The process of getting these mechanical heart pictures, or rather "mechanocardiograms," as the scientists term them, is a long and involved one. But leave such things to the scientists. Never let it be said that they could be daunted. They weren't.

First, under the leadership of Dr. J. Franklin Yeager, they anesthetized a cockroach. Then they removed its back, with the heart attached. This section was laid in a beeswax receptacle where a salt solution acted instead of blood and kept the heart functioning as though still in the body of the late lamented roach.

The next stop in the research was to attach a human hair to the tiny heart and fasten the other end of the hair to a very small opaque glass lever. Thus, each beat of the heart made the lever move, and as the lever wiggled and waggled, it was illuminated by a strong beam of light. A special microscopic camera then was used to photograph the movements of the lever upon a moving roll of sensitized paper.

After it was all over, the study of the mechanocardiograms revealed the astounding fact that the true-blue heart of a blue-blooded cockroach behaves very much like the human heart in its periods of contracting, relaxing and expanding in addition to recording the action of poisons upon the roach's nervous system. The results of any particular kind of poison or insecticide, as seen on the microphotographs, could be accurately judged.

It was learned that a minute quantity of nicotine, a common insecticide, had the ability to make a roach's heart relax. Then, as more nicotine was added to the salt solution, it was found that the insect's exposed heart stopped relaxing and finally stopped beating entirely.

Now, though the Department of Agriculture scientists still have not announced the perfect roach killer after all their research, it seems that, if the cockroach family continues in the scientific limelight, it won't be long before their heart-beats ring out their own death knell.

—N. Y. Sunday Mirror.

Action of Pyrethrum

In contrast to the action of rotenone, which brings about a gradual paralysis of the insect, the action of pyrethrum is rapid. Pyrethrin preparations placed on the integument of insects removed from the spiracles or other body openings, caused death. The penetration of the integument was observed by adding a dye to the concentrate. It is believed that the poisons are then carried to the nerve ganglia in solution in the body fluid. Death was found to be due to the destruction of the cells of the central nervous system, accompanied by paralysis. Insects killed by administration of rotenone did not show the typical nerve lesions produced by pyrethrum. J. T. Martin. J. Soc. Chem. Ind. 56, 91T (1937). From May, 1937, issue of Soap.

A champion is a fellow who gets licked two or three times a week and keeps right on calling himself a champion.

—William Muldoon.

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Tentative Program—24th Annual Meeting National Association of Insecticide and Disinfectant Manufacturers, Inc. Hotel Biltmore, New York—Dec. 6 and 7, 1937

It is expected that many interesting discussions of benefit to the pest control industry will have taken place at the Twenty-Fourth Annual Meeting of the National Association of Insecticide and Disinfectant Manufacturers held at Hotel Biltmore, New York City, December 6th and 7th. We shall endeavor to publish in the January issue of The Log some of the highlights.

The tentative program as issued through the office of John H. Wright, Secretary, under date of November 17th is:

Monday, December 6, 1937.

Mr. W. B. Eddy Will Preside

9 A. M.—Registration, music room foyer.

Meeting called to order by President W. B. Eddy, Rochester Germicide Co., Rochester, N. Y.

Announcements.

"Meet Our Industry"—President W. B. Eddy.

Appointment of Committees.

Report of Committee on Time and Place of June 1938 Meeting—Mr. J. L. Brenn, Huntington Laboratories, Inc., Huntington, Ind., chairman of committee.

Report of Treasurer—Mr. John Powell, John Powell and Co., Inc., New York City.

"We Need Help"—Mr. A. L. Van Ameringen, Van Ameringen-Haebler Inc., New York City, Chairman of Membership Committee.

Roll Call.

Selection of Nominating Committee.

Report of Secretary—Mr. John H. Wright, New York City.

"Legislative Trend"—Mr. Richard K. Hines, General Counsel, Vick Chemical Company, New York City.

Reports of Special Committees.

(1) Executive Office: Mr. H. W. Hamilton, White Tar Company of New Jersey, Inc., Kearney, N. J., Chairman.

(2) U. S. Department of Public Health re Disinfectants: Mr. Melvin Fuld, Fuld Brothers, Baltimore, Md., Chairman.

(3) Association Constitution and By-Laws: Mr. W. J. Zick, Stanco, Inc., New York City, Chairman.

Report of Entertainment Committee—Mr. L. J. LaCava, Continental Can Co., New York City, Chairman.

Report of Publicity Committee—Mr. Ira MacNair, MacNair-Dorland Co., Inc., New York City, Chairman.

Report of Sanitary Specialties Committee—Mr. C. L. Weirich, The C. B. Dolge Co., Westport, Conn., Chairman.

Luncheon—All members are requested to be present in the meeting room at close of Monday morning session in order that a group picture may be taken.

Monday Afternoon, December 6, 1937.

Mr. J. L. Brenn will preside.

2 P. M.—Meeting called to order.

Announcements.

Introduction of Guests.

"Disinfectant Literature and Patents"—Dr. B. G. Philbrick, Skinner and Sherman, Inc., Boston, Mass., Chairman of Committee.

"Peptone for Use in Testing of Antiseptics"—Dr. George F. Reddish, The Lambert Pharmacal Co., St. Louis, Mo., Chairman Antiseptic Committee.

"Application of N. A. I. D. M. Specifications to the Problems of the Purchasing Department of the City of New York"—Dr. Stroud Jordan, Chief, Standardization Bureau, Department of Purchase, City of New York.

"Hotel Sanitation and Insect Control"—Mr. W. D. Lewis, Consulting Engineer, National Hotel Management Co., New York City.

"Scientific Advances in Disinfectants and Antiseptics During 1937"—Dr. E. G. Klarmann, Lehn and Fink, Inc., Bloomfield, N. J., Chairman of Committee on Methods of Testing Disinfectants.

"Testing Mothproofing Solutions"—Dr. E. A. Back, Principal Entomologist, Insects Affecting Man and Animals, Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture, Washington, D. C. (Illustrated).

"Insecticide and Disinfectant Standards:" Discussion Leader, Mr. F. W. Reynolds, Division of Trade Standards, National Bureau of Standards, U. S. Department of Commerce, Washington, D. C.

4:30—Adjournment. Adjournment promptly at 4:30 to permit attendance of the membership at Chemical Exposition in Grand Central Palace. Tickets will be distributed during this session. Special arrangements have been made with the management of the Chemical Exposition to receive our group.

Tuesday, December 7, 1937.

Mr. W. B. Eddy will preside.

10 A. M.—Meeting called to order.

Announcements.

"Preliminary Report of the N. A. I. D. M. Fellowship Crawling Insects. Methods of Rearing the German Cockroach and Testing Liquid Household Insecticides Against It"—Mr. E. N. Woodbury. Introduction by Dr. F. L. Campbell, Associate Professor of Entomology, the Ohio State University, Columbus, Ohio. (Illustrated).

Insecticide Standards—Official Control Insecticide: Dr. Alfred Weed, John Powell & Co., New York City, Chairman, Committee on Methods of Testing Insecticides.

Insecticide Specifications—Mr. H. A. Thomas, Shell Petroleum Co., St. Louis, Mo., Chairman, General Insecticide Committee.

A representative of the Insecticide Division, Food and Drug Administration, U. S. Department of Agriculture, Washington, D. C., will be present and take part in the discussion.

"A New Effective Insecticide" by Dr. N. Tischler and Mr. Arno Viehoever. Presented by Mr. Arno Viehoever, Director of Research, Philadelphia College of Pharmacy and Science, Philadelphia, Pa.

"Modification of the Peet-Grady Method Enabling Greater Speed and Accuracy" by Dr. W. A. Simanton and A. C. Miller, Gulf Research and Development Co., Pittsburgh, Pa. Presented by Dr. Simanton.

"Relation of Dosage and Mortality in the Peet-Grady Procedure of Evaluating Liquid Insecticides"—Mr. C. A. Murray, Director of Research, Baldwin Laboratories, Inc., Saegertown, Pa.

Insecticide Literature and Patents—Mr. John Curlett, McCormick and Co., Inc., Baltimore, Md., Chairman of Committee.

"Labeling of Fly-Sprays in California"—Mr. W. J. Zick, Stanco Inc., New York City.

Report of Nominating Committee.

Luncheon.

Tuesday Afternoon, December 7, 1937.

Mr. W. B. Eddy and Mr. J. L. Brenn will preside.

2 P. M.—Meeting called to order.

Announcements.

Report of Resolutions Committee.

Discussion of Proposed Model for Insecticide and Fungicide Law—Mr. L. S. Hitchner, President, Agricultural Insecticide and Fungicide Association, New York City.

"Control of Advertising as Applied to Insecticides"—Mr. Lee Bristol, President, Bristol-Myers Co., New York City.

(Subject to be announced)—Professor W. C. McTavish, Chairman of the Division of Chemistry, New York University, Washington Square College, New York City.

Disinfectant Standards and Specifications—Mr. J. L. Brenn, Chairman, General Insecticide Committee.

Specifications—Mr. Jack Varley, Baird and McGuire, Inc., St. Louis, Mo.

Cresylic Disinfectants—Mr. E. G. Klarmann, Lehn and Fink Inc., Bloomfield.

Pine Oil Disinfectants—Mr. Melvin Fuld, Fuld Bros., Baltimore, Md.

Election of Officers.

Unfinished Business.

4:30—Final Adjournment.

Association Dinner, Hotel Biltmore, December 7th, at 7:30 p. m.

TRY THIS ONE

Multiply your age by 2 and add 5 to the result. Then multiply by 50. Add the change in your pocket, if less than a dollar.

Subtract the number of days in this year, 365. Then add 115 for good measure.

The two left hand figures will show your age, and the two right hand figures, the change in your pocket.

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Entomologists Meet in Philadelphia

The Ninth Annual meeting of the Eastern Branch of the American Association of Economic Entomologists was held November 18 and 19 at the Walton Hotel, Philadelphia, with over a hundred in attendance. H. N. Worthley, Chairman, presided.

Forty-five papers were submitted covering the research developments as to sprays and other chemicals in the control of many pests, including Japanese beetles, codling moths, spiders, leafhoppers, corn ear worms, and orchid weevils. Pest control operators might find especial interest in the following two papers:

"Absorption of Hydrocyanic Acid by Different Types of Insects," by E. L. Carpenter and William Moore.

"Life History of the Black Carpet Beetle," by Dr. E. A. Back.

The officers for the coming year are: V. I. Safro, Chairman; C. C. Hamilton, Vice-Chairman, and H. B. Weiss, Secretary-Treasurer. It was voted to present a cup to the individual whose paper was acclaimed to be the best at the annual meeting to be held in 1938 in Baltimore, Md.

What a Well-Known Man Says About Our Business Conditions: It occurs to me we are all in the same boat with Christopher Columbus. Chris didn't know where he was going when he started. When he got there he didn't know where he was. And when he got back he didn't know where he had been.

Were There Any Ants on the Ark?

NOAH is very often blamed for having caused housewives a lot of trouble by letting the ants come into the Ark to be saved at the time of the flood. This accusation, however, is unfair to Noah, or rather, to Mr. and Mrs. Noah, for although Noah did let two ants come over the gangplank, he felt a little dubious about doing so at the time and only let them in as a matter of duty and strict obedience to orders. Besides the ants had hardly more than got aboard, before Mrs. Noah spied them and at once pinched out their lives between her finger and thumb. Noah's wife really was a very practical person, much like you and me. She must have been if she could manage with all the crowd on the ship. Besides being practical, she was also one of those people who can be depended upon to say just what they mean when things go wrong. So, as soon as she had killed the two ants, she went straight to Noah and told him what she had done, saying that there were limits to what a woman could stand and that, crowded as they were, she had reached her limit. She simply would not stand having ants around the kitchen. Noah sighed, shrugged his shoulders, and said probably they would have to run the risk of having a short passenger list. He had done the best he could anyway, and, as they had to sail right away, it was too late to go after any more ants. So then he drew in the gangplank and sailed away without a single ant on the Ark.

How then did it come about that we have ants? The truth about the matter is that the ants had a regular ant Noah of their very own, a wise and experienced old ant Noah beside whom our Noah was only an amateur and a piker. You know shipping was not Noah's line at all; he was more of a stockman and farmer than anything else. Well then, when the Flood came along this crafty old ant Noah just gathered a few ant families from around where he was and then led them onto a nice dry chip of wood. Then, when the water rose higher, off they floated, safe and sound. So that is the real reason why we have to have ant exterminators.

The moral of this story is that we should never blame anybody for anything until we know all the facts.

ROBERT E. HACKLEY.

DO INSECTS FIGHT MAN?

Man is constantly fighting insects. Do insects also fight man? Yes or no.

They certainly do apparently intentionally. In one of the most fascinating and **alarming** books I have read in a long time, Flint and Metcalfe's Insects—Man's Chief Competitors, they show that insects are fighting man as never before. They give man yellow, trench, typhus, dengue and spotted fevers; malaria, sleeping sickness and many other diseases. Their chief fight against man is that they **eat his food**—they eat up his clothes and even his houses and solid stone and iron buildings.

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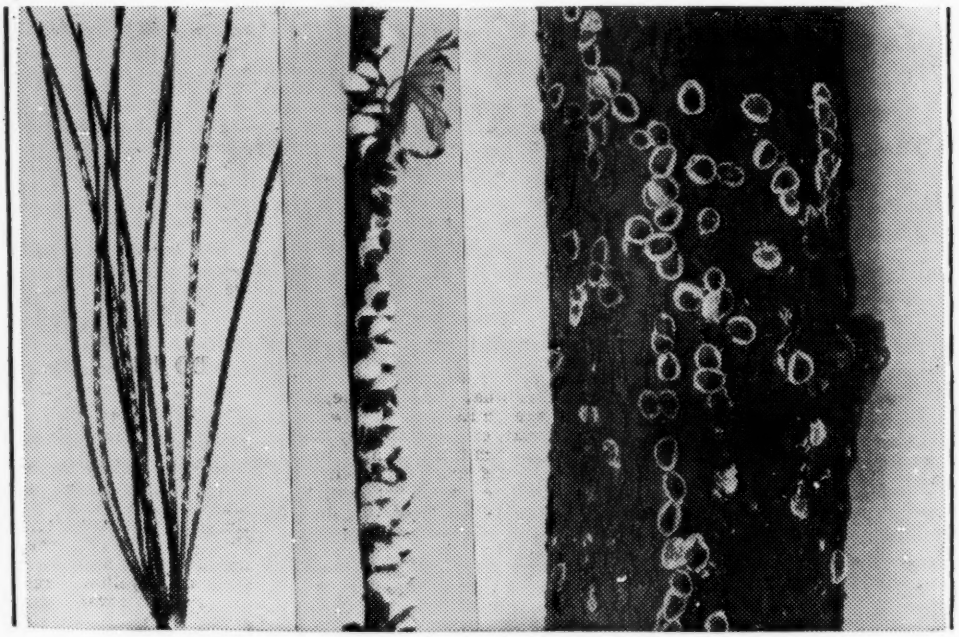
Scale Insects Considered Pests of Trees and Shrubs

By PROF. J. J. DAVIS, Purdue University



Among the least conspicuous but most destructive insects attacking woody plants, particularly shade trees and ornamental shrubs, are the scale insects. Probably the most important of these are the oyster shell, San Jose, European Elm scale, (right figure), cottony maple scale, (middle), and pine leaf scale, (left figure). All of these, with the exception of the oyster shell scale, may be controlled by spraying thoroughly with a three per cent oil spray during the dormant season.

The oyster shell scale requires an 8 per cent oil spray if treatment is made during the dormant season or they may be controlled during the hatching period, usually about June 10, by spraying with a summer oil or a spray prepared by dissolving a pound of soap in five gallons of water to which is added an ounce of 40 per cent nicotine sulphate.

RATS

War is terrible. Daily when we read about the Spanish conflict and the Japanese invasion of China we are astounded at the unnecessary loss of human life. It is a terrible thing to kill folk in cold blood, yet when we look at it from another angle, we are allowing that very thing to happen right under our own noses. For instance, rats cause diseases and in so doing have been instrumental in killing more human beings than have been killed in all the wars since the time of Christ. Rats carry Bubonic plague, para-typhoid, hydrophobia, and other dreaded diseases. To avoid the spread of diseases, it is just about as necessary to kill the fleas which infest a rat as to kill the rat itself, for they are the real culprits when it comes to the matter of disease spreading. We concern ourselves about this matter of war and say it is so unnecessary, but we do not concern ourselves nearly enough about the presence of rats with their resultant destruction.

Someone once said, "The rat is the only animal that has been going on year by year almost from the beginning of time, increasing in numbers and devastation in spite of man fighting him." Maybe these fights on the part of man are not on a wide enough front. Maybe we have simply taken the rat for granted and not become sufficiently excited about it, or maybe we have not done enough research in the matter of rodent control.

It has been said that a pair of rats if unmolested can produce three hundred and fifty million offspring in three years. Of course such a thing does not happen in actual practice, for many of the offspring fall by the wayside, having either been poisoned, trapped, gassed, shot, or in some fashion disposed of by man's ingenuity. In any event, it is estimated that in any given community the rat population equals that of the human beings. We each pay a "hidden" tax of $2 per year toward rat support. This equals two hundred and forty million dollars per year which is paid out by the citizens of the United States toward the support of its rat population.

A rat is in no sense useful and on the other hand it is dangerous and certainly expensive, for it costs dearly in lives and money. Furthermore, they pollute and render unfit for human consumption quantities of supplies many times in excess of what they eat. By a stretch of the imagination it could be conceived that rats are useful for two purposes. One is that they do give employment to a number of men engaged in exterminating and pest control operations. The other is they furnish a certain amount of sport, for rat catching is more than an art or even a science to those who are engaged in it. It is a real sport and those who engage in it will tell you that it is much more thrilling than angling and similar sports. The reason it is so thrilling is that a rat is so very intelligent. He is very cautious and certainly elusive to the nth degree. He meets almost every sort of a situation it seems, and Nature seems to help him do it for it is a known fact that in very hot places they have a very light coat of fur, while in cold storage places and refrigerating establishments Nature endows them with a heavy fur covering. Likewise, they are semi-aquatic in their habits. They may never have been near a large body of water in all their lives, but thrown into such a situation by floods, they prove to be expert swimmers.

Because of their very cautious nature and because of the cleverness and cunning of a rat, "rat hunting" should only be engaged in by men who make that their life's work.

Woman Files Claim for Bedbug Bites

Bakersfield, Calif. — Hazel K. Seddon asked $2500 damages for bed bug bites in a suit filed in superior court here against Frank Reina, from whom she rented an apartment.

She said she was bitten to such an extent that medical attention was necessary.

CO-OPERATE—Remember the banana; every time it leaves the bunch it gets skinned.

Why Parasites Fail

A number of attempts to introduce and establish in the United States certain species of Hymenoptera (Family Aphelinidae) for the control of citrus scale insects have repeatedly failed. Recently, however, the reason for this has been ascertained. Unmated females of these species produce only male offspring; mated females produce only female offspring. The females are primary endoparasites, developing only in the scale insects. The males are secondary parasites, developing only on their sisters or other parasitic insects. In some species the development of the female takes place on the inside of its host while that of the male takes place on the surface of its host; the one surrounded by blood, the other by air. In these species the parent female, before mating, laid male eggs on the surface of another parasite, and, after mating, female eggs on the inside of the scale host. Mating, therefore, causes a marked "psychological" change in the egg-laying female.

In other cases such a change in instincts does not occur. The parent female, whether mated or unmated, lays its male and female eggs inside of the scale host. Then another strange thing occurs. The male egg does not hatch until the female hatches and devours all of the host's blood and tissues. Then the male hatches and, in turn, devours its sister, thus eating the scale second hand. In this case the male larva which is equipped with air breathing system, would drown if it hatched under the same conditions as did the female. In order for the species to exist, males must be produced in this devious manner. So, instead of the mated female killing its mate as does the black widow spider, a male, in order to reach maturity, destroys a female. The male then mates with a female that has escaped attack. In spite of apparent handicaps, these peculiar parasites reproduce and multiply.

Possessed with the knowledge of their habits, we are now able to so manipulate them as to obtain both sexes at the proper time. This enables us to successfully introduce and establish these beneficial insects. —Crop Protection Institute.

Ladybird Beetle Public Benefactor

By PROF. J. J. DAVIS, Purdue University

Ladybird beetles, usually hemispherical, spotted beetles, are of great value in checking outbreaks of soft-bodied insects, particularly aphids or plant lice. The illustration shows the beetle, the larva and the pupa. The larva, which is the feeding and growing stage, is most active feeding on plant lice and the like. Were it not for these beneficial forms, plant lice would be far more abundant and destructive than they are.

The weaker the argument the stronger the words.

Wasted Words in Ads

Do the words in your advertising convey your meaning? Are you wasting words and money, too? Are some of them like the following, picked at random?

"Price Reasonable." From whose point of view? What price?

"All Improvements." For instance, what?

"Newly Renovated." "Renovated" is an objectionable word that almost suggests fumigated.

"Ideal Location." What makes it so?

"Best Value in Today's Paper." Rather hard to prove, don't you think?

"Must be Seen to be Appreciated." Lazy. Make the reader want to see it.

"Moderate Rent." Who is to be the judge of this?

"Convenient Location." Convenient to what? Everything is convenient to something.

"Very Attractive." What are some of the attractions?

"Unusual Opportunity." Tell something to prove it.

"Three Elegant Rooms." Since when has elegance moved into three rooms?

"Leaving Town Suddenly." Of course, it is none of the reader's business, but—

"No Reasonable Offer Refused." The last resort of a despairing salesman. Why admit despair?—Buffalo Realtor.

These New Booklets Describe
Penick's Laboratory Tested

ROTENONE - SQUILL - PYRETHRUM

Available upon Request

S. B. PENICK & COMPANY
132 NASSAU STREET
NEW YORK, N. Y.

Makes RATS
Get Out *and* STAY Out!

LARVACIDE is one fumigant which Brother Rat can't laugh off. Its powerful tear gas fumes penetrate his hiding places and send him scurrying out —*to die.* With LARVACIDE you'll have no carcass nuisance between walls and floors.

At very low concentrations LARVACIDE is a powerful Rodent Repellent. Sprinkled in runways it becomes your best possible assurance that the pests won't come back.

MUCH *Safer for Humans*

No one unprotected by a mask can enter or stay in concentrations considered dangerous. LARVACIDE'S fumes drive them out before damage can be done.

Write for 12-page illustrated Bulletin on HOME and COMMERCIAL Fumigation, the Safer Way.

Larvacide
CHLORPICRIN

INNIS, SPEIDEN & CO.
117 LIBERTY STREET, NEW YORK
BOSTON - PHILADELPHIA - CHICAGO - CLEVELAND - KANSAS CITY

Local Organization News

Northwestern Association of Exterminators and Fumigators

A meeting of the Northwestern Association of Exterminators and Fumigators was held the early part of November. Seven of the local firms were in attendance, and discussed the advantages of the recent convention of the National Association, held in Memphis, Tenn.

Cooperative endeavors were decided upon, which included group listing in the classified telephone directory for the entire Association, as well as merging interests as to personal liability insurance coverage. Both Minneapolis and St. Paul are fortunate, in that they are governed by local ordinances, and therefore insurance companies should feel the risk well to be considered because of the supervision of existing ordinances.

As guest at the meeting, Harry J. Ahles of John Powell & Company, spoke briefly of the general interest on the part of the industry because of the activities of the National Association.

Max J. Levy, president, presided.

After the meeting, the group had a picture taken which was not planned for, and unfortunately Mr. Ahles, the guest, departed before it was taken.

From left to right: A. T. Athelstan, Jr., Athelestan Products Co.; William Bouch, American Exterminating Co.; William O'Reilly, Plunkett Exterminating Co.; Max J. Levy, Twin City Exterminating Co.; E. H. Leitte, Fumigation Service; H. N. Armour, Rose Exterminating Co.; H. V. Smith, H. V. Smith & Co.

New York City

Associated Exterminators and Fumigators, Inc.

Details of the meeting held Tuesday, November 30, at the Association headquarters, 7 West 44th Street, New York City, will have been received too late to include with this issue of The Log. President Buettner stated in advance that the meeting would largely concern itself with a discussion of a "Liquidated Damage Agreement" having to do with Fair Trade Practice Rules.

The subject will be presented by W. J. Parker, Executive Secretary of the Association, outlining the possibilities of having a few teeth to regulate Fair Practices. Ten rules have been drawn up for consideration which in turn it is planned to have enforced by means of the appointment of an Arbitrator and a Liquidated Damage Bond. There are many angles to this plan which will require serious consideration. Several meetings of the Board of Directors have been held in preparation of presenting the plan.

There seems no question whatsoever after a careful visitation made by Mr. Parker and his assistants, Mr. Connor and Mr. Tompkins, with each of the members that the basic problems seem to summarize themselves into unfair competitive practices, which can be roughly classed as unethical in matters of Advertising, Bribery, Protection of existing contracts against false representations and unfair attempts to induce breach of existing contracts; Unfair Labor practices and apprentice labor; Sales below cost. Essentially the problem is one of all being interested in better prices and the realization that it is illegal, under the law, to make agreements to raise or maintain certain prices. It is possible, however, to have price stabilization and the program as outlined will deal with that phase.

Philadelphia Firms Hold Luncheon

A luncheon meeting of the Philadelphia firms was held at Hotel Sylvania on November 19. Those present were Martin Meyer, Theo. Meyer Estate; John Vogel and E. A. Ritt of Vogel-Ritt Company; D. M. Fleming; R. L. Chamberlain, Chamberlain's Exterminating System; Alfred Schmitthenner, Rose Exterminator Co., and Tom Sweeting of the Atlas Exterminating Co.

Discussion centered mainly around the effects of the 44-hour law of the State of Pennsylvania which would prohibit any person from working more than eight hours in any period of twenty-four hours. A letter has been prepared and sent to the State department asking for an exception in view of handicaps that would be involved in case of fumigations and other emergency work.

William O. Buettner, Secretary of the National Pest Control Association, was also present and spoke informally of general conditions in the industry and means of cooperation that could be applied.

Love may make the world go 'round—but so does a bad case of indigestion.

National Association Notices

Members are urged to call on each other, especially when traveling about the country. A permanent office is not required, but for those firms visiting New York City, it is urged that the secretary be called at either South 8-4116 or South 8-4120 and appointment will be arranged.

Memphis Convention Proceedings: The trade papers will carry the principal addresses and certain reports. The Membership Service letters will contain the more intimate details such as "Questions and Answers" of the Clinics, Insurance, Advertising, Legislation, etc.

Communication No. 103: Sent to the membership November 13th discussing Mr. Strong's address and general items of membership interest. Complete text of the report from the Legislation Committee was included.

Communication No. 104: Sent to the membership November 20th and carried items of usual interest for the membership. Complete text of the Minutes of the Board of Directors meeting was included.

Communication No. 105: A Three in One membership service letter sent November 24th. All members who did not attend the Memphis Convention had included a copy of the official program. Many non-members who have expressed interest in our Association and those non-members who attended the Memphis Convention received a copy of Communication No. 103. The story about the new seal adopted by the Association is included with this membership service letter. This letter went to 950 firms throughout the country.

Board of Directors Official Communications: There has been put into effect a new numbering system so as to avoid confusion with our regular membership service letters. Letters 5-A (sent November 13th) and 5-B (sent November 18th) took up the business routine of the Association.

Relationship With Trade Papers: With the publication of our list of officers and directors in trade papers and otherwise there is sometimes the attitude that the Association has a financial interest or endorses the contents or supervises an editorial policy. Such is not the case. The Association appreciates the co-operation given through various publications. The Log was officially recognized at the Washington, D. C., Convention of 1933 and mutual co-operation has been enjoyed, but the Association is not responsible for matter printed in trade papers except what is definitely credited to the Association. The appearance of the list of officers and directors is for information purposes.

Pest Control Listing in Telephone Directories: This is covered by an editorial. Firms throughout the country would do well to engage in active programs to bring about this general form of classification.

New Seal: Cuts are provided for the membership in sizes of ½x¾ inch and ¾x1 inch and are to be procured from the secretary, 3019 Ft. Hamilton Parkway, Brooklyn, N. Y. The charge is $1.00 per cut and two or more ordered at the same

time at the rate of 50c each. No orders filled without check and money order accompanying order. The larger cut apppears below.

Purdue Conference: Complete information will be available shortly. The dates are January 17-21, 1938. Conference will take place at Purdue University, Lafayette, Ind.

Safety Campaign: The Association is engaged in an active "Be Careful—No Accidents" campaign and encourages all firms throughout the country to join this endeavor.

Membership: The Association does not engage in any high pressure campaign for membership but continues to extend a cordial invitation to all firms to make application which must conform with the Constitution and By-Laws as amended. Information gladly supplied.

Correction

The secretary of the National Pest Control Association in his annual report referred to eight associations cooperating with the national association. The list as printed in the November issue did not include one name that should have been shown. Our apologies to the Professional Exterminators Association which should have been included.

New All "Glass Brick" Building for Magnus, Mabee & Reynard

An ultra-modern plant—the first of its kind in New York City—is being constructed for Magnus, Mabee & Reynard, Inc., prominent essential oil house of that city at 16 Desbrosses Street to 119-121 Watt Street in the heart of New York's new drug, chemical and pharmaceutical center adjacent to the Holland Tunnel.

The building, six stories, said to be the first all "glass brick" industrial plant in New York City, and a specially conditioned basement for the storage of bulk Essential Oils, will be of approximately 60,000 sq. ft. Magnus, Mabee & Reynard, Inc., will occupy the building in its entirety for general offices, manufacturing, shipping and storage.

A chemist's dream of a complete research laboratory will be created in this sun-flooded building. Spacious and equipped with the most modern equipment for research, every facility for the testing of essential oils, flavors and perfume oils from the elementary stages to actual usage in finished products will be available through complete laboratory resources.

The old Fulton Street district, once the drug and pharmaceutical center of New York, will lose one of its oldest tenants when Magnus, Mabee & Reynard, Inc., occupies its modern new building. The firm, founded by P. C. Magnus, Sr., now deceased, was founded in 1895. In 1901 it occupied the 5-story building at 257 Pearl Street, which is notable as the site of the first Edison Power Station. In 1922 Magnus broke through 257 Pearl Street, taking over the adjoining 5-story building at 32 Cliff Street, both of which are now occupied by the company.

The building will be ready for occupancy about April 15.

Striped Melon Beetle

By Prof. J. J. Davis

The most destructive of all insects attacking melons and cucumbers is the black and yellow striped melon beetle. Not only does the beetle damage plants by feeding but in addition they carry the wilt disease organism and their larvae feed on the roots of the plants. The most effective and practical control is dusting the plants with a mixture of one pound of powdered calcium arsenate and 10 pounds of gypsum or land plaster. The first application should be made when the plants first appear above ground or as soon as the first beetles are noticed, and the treatment repeated every week for four or five weeks.

Specialists in

Highest Quality Tested Pyrethrum and Rotenone Products

John Powell & Co., Inc.

114 East 32nd Street
New York, N. Y.

CALICO SEED

—kills all mice

Ready for immediate use . . . no mixing required. Guaranteed to kill all mice in 3 to 4 days.

Used in foreign countries and from coast to coast by largest Public Warehousemen, Seedsmen and Public Exterminators. Highly recommended.

Industrial Size. **8-ounce pour spout can. 10 Pounds $4.00; 25 Pounds $7.00; 50 Pounds $12.00; 100 Pounds $22.00. All Delivered.**

Satisfaction Guaranteed or Money Refunded.

THE BAGNALL COMPANY

Station A Kansas City, Mo.

Picked Up From Here and There

The big talk still remains to be the recent Fifth Annual Convention of the National Pest Control Association held at Memphis, Tenn. From all sections of the country come letters of praise of that "Southern Hospitality" and advantages of having attended. The Memphis Pest Control Association, as local hosts, should feel amply repaid for the efforts put forth to entertain the largest convention thus far held.

An interesting commentary is that final decision for the 1938 Convention City has not been decided at this writing and yet all correspondence indicates that regardless where the convention is held, "I'll be there." Among the cities urging to be considered are: Chicago, Ill.; Boston, Mass.; Pittsburgh, Pa.; Any City in Texas (see H. O. Abel, Alfred Zimmern, J. H. Howell, etc.); Indianapolis, Ind.; and Omaha, Neb. John P. Linn made a special trip to Chicago to confer with Walter S. McCloud to bring the heavy portfolio of "Why Omaha, backed with plenty information."

The sick list included a few shocks but at this writing there are favorable reports all round. Ed. Arnott will be up and around by the time The Log reaches you, having had his appendix removed. (Incidentally from his sick bed, Ed. kept dictating letters to convince all that Indianapolis is the place for the 1938 convention). The most serious accident was an automobile crash. Mr. and Mrs. Wilbur F. Smith of Pasadena, Calif., were rushed to the hospital, both requiring many stitches in addition to suffering severe bruises and Mrs. Smith a dislocated and partially broken hip. Both are still confined to their beds. And from Columbus, Ohio, comes word that Harry B. Worrell of the "K" Disinfectant Co., fell from a ladder which broke his ankle, a few ribs and fractured his elbow. Many friends in the industry have already expressed their hopes for speedy recovery.

The General Biological Supply House, Inc., of 761 East 69th Place of Chicago, Ill., specializes in charts for schools and colleges. A Termite Chart showing the stages of the termite might prove interesting as a display or sales medium. One size is 17x22 and sells for $1.00, and the other is 8½x11 and sells for 25 cents.

It is hard to keep up with the visitors who come in and out of New York City, but among those who contacted Bill Buettner, were Mr. and Mrs. Bartlett Eldredge of Waltham, Mass.; Mr. and Mrs. Lester West of Boston, Mass.; Mr. and Mrs. Elmer Roberts and daughter, Dorothy and son, Donald of Burlingame, Calif., with their friends Mrs. J. Winge and daughters of Seattle, Washington; and Max Rukin of Chicago, Ill. The usual rounds were made including Radio City, The French Casino, The Cotton Club, and even a couple meetings with groups of the New York City industry. We almost neglected to say that Miss Pearl Schwartz of the Stone Chemical Co. of Chicago, Ill., included several evenings at the theater while in the big city.

Mr. and Mrs. Theo. Berz of the Orkin Exterminnating Co. of Chattanooga, Tenn., were busy directing some of the industry around enroute home from Memphis. Irving and Herbert Josephson of New York City, and N. Haas of New York City have high words of praise for the sightseeing trip taken at Chattanooga.

Thus far we have been unable to catch up with Carl Strom of the Western Exterminator Co. of Los Angeles, Calif., who was heading east with his bride and naturally included among other stops Niagara Falls. This also remminds us that Mr. and Mrs. C. O. Dickens of the same company started for the Memphis Convention and became stranded at Denver, Colorado.

The Rose Exterminator Co. has opened an office at 102 N. Broadway in St. Louis, Mo., which will be in charge of Mr. Gerald Clem. This was one of the few remaining large cities where the Rose Exterminator did not have an office. Congratulations and much success.

The Orkin Exterminating System is to hold a company meeting of all of its managers at Atlanta, Georgia, December 17-18-19. Louis Kotler is in charge of the arrangements. There is no guess about this meeting being successful after we have seen Louis in action at Memphis.

The American Lumber and Treating Co. have announced their removal of New

M·S·A

HYDROCYANIC ACID GAS MASKS . . .

United States Bureau of Mines-Approved protection for you!

Protection that you can rely on, plus unusual wearing comfort are the prime qualities built into this mask . . . officially approved for protection against Hydrocyanic Acid Gas by the U. S. Bureau of Mines. It is equipped with the famous Kops-type facepiece that fits any face perfectly, adjusts easily and permits normal hearing, sight, speech and working freedom. ● Write for a demonstration *(there's no obligation)* or for information on a suitable M.S.A. Mask for any other gaseous hazards.

MINE SAFETY APPLIANCES CO.

Braddock, Thomas & Meade Sts., Pittsburgh, Pa.

District Representatives in Principal Cities

For DUST *hazards:* MSA COMFO RESPIRATORS

"The Proof of the Pudding"

Actual Experience

has proven that there IS a mothproof liquid that will protect any article treated against moth damage for life of fabric.

Thousands of satisfied users during the past five years prove the efficacy of PER-MO mothproof. PER-MO is easily applied in the home, without odor, fumes or any possible danger. It is non-combustible and cannot harm the most delicate fabrics.

One application mothproofs any treated article for life of fabric.

Pest Control Operators, rug cleaners and dry-cleaners are making large extra profits from PER-MO mothproofing service.

Write for full particulars.

INDUSTRIAL TESTING LABORATORY, INC.

Kansas City, Missouri

Per-Mo Mothproof Company

Gentlemen:

This is to certify that we have made tests and analyses of your Per-Mo Permanent Mothproofing and find as follows:

Per-Mo is colorless, odorless, non-inflammable liquid producing no stain on fabrics when properly applied.

The solution does not affect the color or tensile strength of the fabric when properly applied. Our analyses and washing tests show that dry cleaning does not remove Per-Mo at all, and repeated washings remove only a small portion. This indicates that the treated fabric will be moth-proofed for its full life by one treatment.

PER-MO MOTHPROOF CO.

2306 Olive Street, Dept. M KANSAS CITY, MO.

York City offices to 420 Lexington Ave. For our industry the interest rests largely in this company providing commercial wood preserving service with Wolman Salts and Creosote available in the metropolitan district of New York through the plant at Elizabethport, N. J., 300 South First St.

Publicity of the National Pest Control Association Convention at Memphis, Tenn., found its way through pictoral sections of newspapers throughout the country. The picture most frequently seen was strictly for its human interest value showing a young lady doning the gas mask manufactured by the Acme Protection Equipment Co. of Pittsburg, Pa.; holding a Breuer Electric Sprayer from which the vapor spray in the form of L. Sonneborn & Co., Deo-Base can easily be seen.

"Bill" Stover from Detroit, Mich., was last heard from as he boarded the plane from Memphis to pay a visit to New Orleans, La. Mr. and Mrs. Max J. Levy of St. Paul, Minnesota, reversed the order by going to New Orleans first before attending the Memphis Convention. "Joe" Mandelbaum will probably be reporting others who paid a visit to New Orleans.

The Mine Safety Appliances Company, Braddock, Thomas and Meade Streets, Pittsburgh, Pa., has recently issued a new booklet entitled, "Pertinent Questions and Answers Concerning Dusts." Copies are available by writing them.

Our congratulations are extended to Mr. and Mrs. Norman Dold on the arrival of Robert James, 7 pounds 15 ounces, born October 16. There are the usual facetious remarks such as joy in seeing the third member of what should be a Dold basketball team, your Bobbie Jimmie having two brothers. Harlem Ives seems to think that a sister would have been a fine "break" in a family like this. There are those of us who do recall that Norman seems to be on the anxious seat every two years around convention time awaiting news of this kind. Bt that as it may, we are happy to learn that mother and baby are doing splendidly.

Getz Exterminators, Inc., St. Louis, Mo., report that their Atlanta office has been moved to new and larger quarters now being located at 92 Plaza Way, S. W., Atlanta, Ga.

S. B. Penick & Co., have recently issued a new and very interesting 16 page booklet, dealing with the use of red squill in rodent control and contains information as to preparation of baits.

Pest Control Operators may write to Penick & Co. for a free copy which is available.

Mr. and Mrs. S. S. Rosen have spent a few weeks in Florida. Mrs. Rosen seems much recovered from her illness. Mr. Rosen is president of the Guarantee Exterminating Co. of New York City.

No decision as yet to announce as to the 1938 convention of the National Pest Control Association, but from many, many sources comes the word that it simply must be and will have to be Omaha, Nebr. Some say that it is all over but the shouting but at the moment there is no official announcement.

MOUSE MUSIC

Mrs. White: "I thought I heard a mouse squeak."

Mr. White (sleepily): "Well, what do you want me to do—get up and oil it?"

Talking about the National Association conventions: Writes Henry Maheau of Montreal, Canada: "Back home and kicking. Memphis was a wow. This is my second convention and as to how I like 'em, I'd say I don't care if you make it as far as Mexico City for '38. I just can't afford to miss it."

Gilbert Stover of Baltimore, Md. (B. & B. Exterminators), says that he cannot claim credit for any goat hunting but has just returned from some bear and deer hunting in the swamps of North Carolina. Suggestion is made that the secretary of the National Association ought to try his luck in North Carolina. (Bill wants to know if he must ride on a wide or narrow horse and prefers walking, if it is just the same to Gilbert.)

Our congratulations to Dr. and Mrs. Al Weed in that the good news has come to us that a baby girl was born to them on November 21. Looks like another entomologist in the making.

The Pesticide Company of Chicago, Ill., reports splendid response to their booth exhibit in connection with the Products Exhibition of the Purchasing Agents Association held at Hotel Sherman the week of November 15. Mr. H. C. Kaufman indi-

(Continued on Page 36)

Monarch Powder Sprays

Used by Many Leading Exterminating Concerns Throughout the Country

Made in 3 Sizes

No. 40 Has 14 Ounce Capacity

No. 41 Has 9 Ounce Capacity

No. 42 Has 8 Ounce Capacity

Large Opening in Neck Affords Easy Filling

Screens Powder Perfectly

Made of High Grade Materials

Write for Catalog and Price List

THE VANT WOUD RUBBER CO.
JERSEY CITY, - - - - NEW JERSEY

BARBASCO ROOT

For the best roots yielding a high percentage of ROTENONE, guaranteed not less than 5%, demand:

"RECREO"
BRAND

Shippers,
The Paranapura Cube Export Company.
Iquitos, Peru.

H. A. ASTLETT & COMPANY,
64 Water Street, New York City.
Sole Selling Agents in the U. S. A. and Canada.

ANNOUNCEMENT

Over four hundred worthwhile exterminating companies throughout the U. S. A. and foreign countries are now using . . .

VIZ ROACH POWDER

AT 12c PER POUND
There Must Be a Reason

Sole Manufacturers and Distributors
CONNECTICUT PRODUCTS, INC.
NORWALK, CONN.

cates that the public is unusually interested in a display of fumigating materials, powder-bellows, liquid sprayers, and gas masks. This is an idea for others in the industry to try also.

The December issue of the Readers Digest prints a rather interesting article "Pro and Con—Execution by Lethal Gas." In passing we might say that the states of Nevada, Arizona, Colorado, North Carolina, and Wyoming now employ the method of hydrocyanic acid gas executions. Other states which have adopted a similar law include California, Missouri, and Oregon. Fumigators especially will appreciate this article and will be interested to note the suggestion made that carbon monoxide might be better employed than hydro-cyanic acid gas.

The best books are those which contain the records of the history and the wisdom of men. They are the priceless links with past ages and other peoples. They are the keys to the treasure chests of the accumulated thought and experience of races and nations.

Good books are the constant companions of the man who would serve his best purpose in life, for they advise him in service, and strengthen his ideals.

Good books are available to all, at little or no cost. They are your ready and constant companions — if you want them. Everyone who enjoys life should like books; should want to own them, and should be ready to lend them to others. For books are useful only as they are used.—Rotarian.

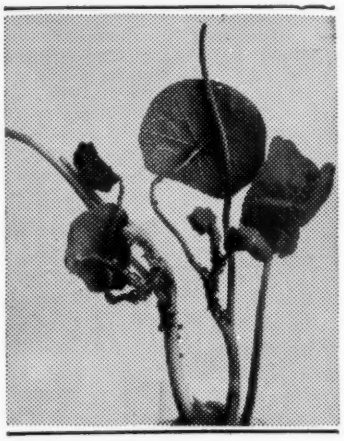
Being Fair

It would seem to be very simple and easy to be fair. No matter what our personal opinion about a thing may be, it ought to be quite within reach of our powers to present a perfectly clear, fair statement of the case. But it is not easy. Try it. Can you really appreciate and understand another man's viewpoint and sincerity about any issue? Can you really state the evidence without putting your opponent in an unfavorable light? If you can, you have an unusually fine, fair and analytical mind.

In 1869 a United States chemist imported specimens of the gypsy moth for experimentation. A gale upset a box of moth eggs. As a result of this incident, gypsy moths have caused annual crop damage amounting to millions of dollars.

Aphids or "Ant Cows"

By Prof. J. J. Davis



Aphids, plant lice, or "ant cows," as they are called because they are attended by ants which relish the sweet "honeydew" given off, are among the commonest insects that feed on plants.

In spite of the fact that they are soft-bodied and easily destroyed by such common contact sprays as nicotine, pyrethrum and derris, they are among our more important pests. This is due to the fact that they reproduce so rapidly that they often become abundant and destructive without warning. Further they may curl leaves within which they are hard to reach. The black nasturium aphid, shown in the illustration, is one of the common garden species. Almost every flower or vegetable garden plant, tree and shrub are subject to aphid attacks.

SALES HINTS

A successful sales executive gives these suggestions as his "Ten Commandments of selling":

Be agreeable. If your voice is disagreeable and your manner of speech indistinct, see specialists. And remember, I like you to be sunny, but I don't want to get freckles.

Know your goods. And when you tell me anything, talk plainly. Most salesmen lack imagination. They cannot conceive of the extent of my ignorance.

Don't argue. When you argue with a man, you are trying to push him. He may be weak and pretend to be convinced. Overnight he will change.

Make it plain. Get a grasp on the fellow you are talking with. Do not get out that little book that will only puzzle him. Answer his question without looking at your books, charts and tables.

Tell the truth. By a law of average, honesty gives the greatest profits. If you are working for a concern where you cannot tell the truth, quit and go elsewhere.

Be dependable. If you tell a man you are going to do a thing, do it if it costs a leg.

Remember names and faces. Don't call me Green when my name is Crane. I am sensitive about my name. Don't call me Mister if my title is Doctor. Don't call a Colonel, Major.

Don't be egotistical. I am. You must not be. Don't show off. You came to sell me something, not to make a good impression. Magnify my ego, not yours.

Think success. Radiate prosperity. Do not mention calamities, dirges, funerals. Be a Pollyanna.

Be human. If the Company merely wanted to disseminate information, they would use a catalog—not you.—K. C. Realtor.

Anybody can cut prices, but it takes brains to make a better article.

—Philip D. Armour.

Business Opportunities

(Classified)

RATES — For individuals seeking employment, 5c per word, minimum $1.00. All others 10c per word, minimum $2.00. All advertisements must be in the hands of the publishers seven days before publication date and must be accompanied by cash or money order for payment in full. The publishers are not responsible for any false or misleading advertisements.

WANTED: Experienced salesman—service man by old established firm on Pacific Coast. Must be thoroughly competent to produce results. Character references essential. (No booze hounds.) Salary-Commission with splendid future possibilities for a clean-cut man who can make the grade. Give full particulars in letter. Confidential. Exterminators Log, Box 275.

CUTS—It Pays to Illustrate

Write for Prices and Information

THE EXTERMINATORS LOG, Cut Dept.

512 East 14th St. Kansas City, Mo.

THALLIUM SULPHATE

THE MOST EFFECTIVE RODENTICIDE

FOOTE MINERAL COMPANY

1629 Summer Street, Philadelphia

Merry Christmas

AT this time of the year the advent of the Christmas season rekindles in our hearts the appreciation of our many friends.

We remind ourselves of pleasant associations and our many friendly business contacts. We wish we could grasp the hand of every reader and convey our good wishes by word of mouth. So, across the miles here is a hearty handclasp and a fervent wish that the best may be yours this Christmas season and that the New Year will bring you the utmost in health, happiness and prosperity.

A NON-POISONOUS RAT KILLER

15c PER POUND IN ONE-POUND TIN CANS

For Safety, Effectiveness and Economy

—USE—

USE-RID RAT KILL

Try It—It Saves Time and Money

SUR-RID Rat Killer is tested in our own laboratory on both wild and tame rats and we GUARANTEE the Killing Power.

SUR-RID Rat Killer contains meat, cereals, vegetables and just the right amount of a tested killing agent. It is especially appetizing to rats and mice as there is only an odor of fresh meat and vegetables and there is no raw odor of chemicals; three distinct lures, MEAT, FISH and CEREAL, packed either assorted or of one kind to a case, which contains three dozen one-pound cans.

Due to the increase in the sale of this Rat Killer, we are reducing the price as follows:

	Per Dozen
Three Dozen Lots, labeled	$2.00
Gross Lots, labeled	1.90
Gross Lots, no label	1.80
The half-pound size, packed four dozen to a case	1.25

All Prices F. O. B. St. Louis

Also Packed Under Private Label

SUR-RID PRODUCTS COMPANY

Manufacturers

(FORMERLY REAL EXTERMINATING PRODUCTS CO.)

455 Paul Brown Bldg., St. Louis, Mo.